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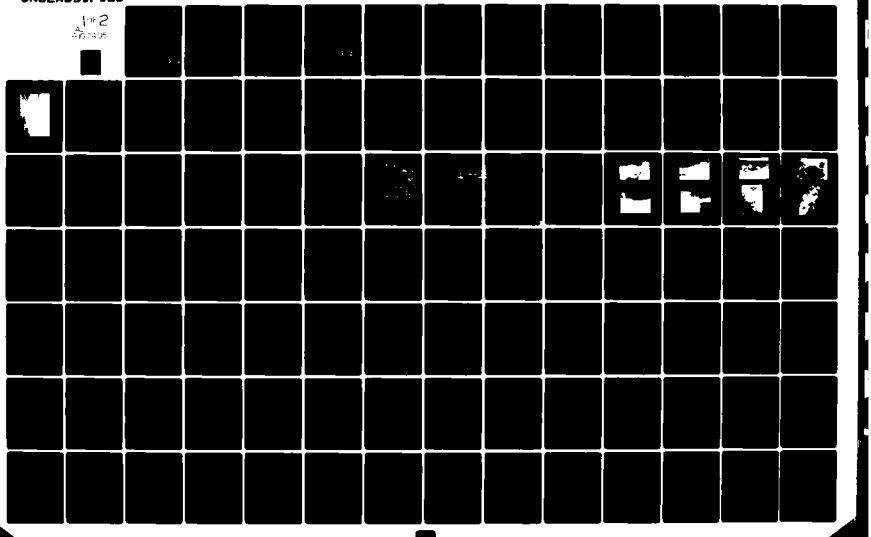

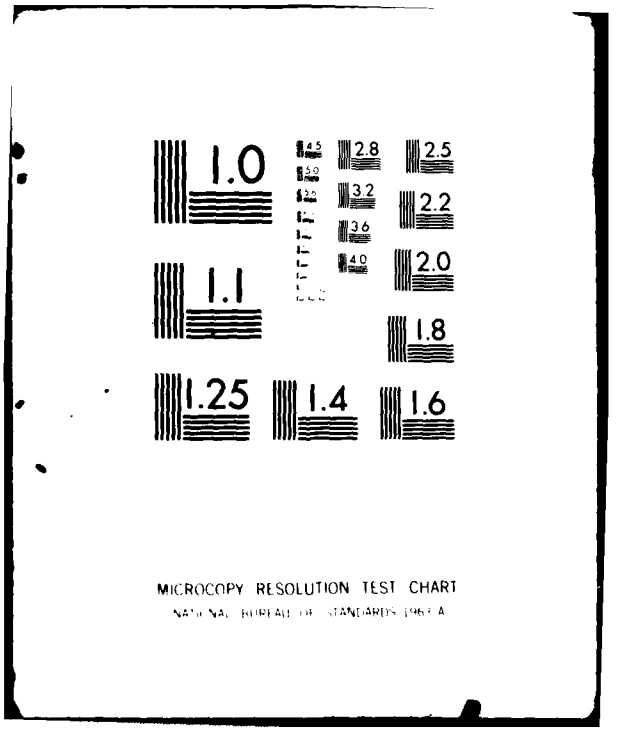
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LOWER HUDSON RIVER BASIN

LAKE CASSE DAM

PUTNAM COUNTY, NEW YORK
INVENTORY NO. N.Y. 1156

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

NEW YORK DISTRICT CORPS OF ENGINEERS

SEPTEMBER 1981

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization.

The examination of documents and the visual inspection of Lake Casse Dam did not reveal conditions which constitute an immediate hazard to human life or property. However, the →

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dam has some deficiencies which require further investigation and remedial action.

Using the Corps of Engineers screening criteria for review of spillway adequacy, it has been determined that with the existing steel box cover in place the dam would be overtopped for all storms exceeding approximately 28 percent of the PMF. The overtopping of the dam could cause the erosion of both abutments and the downstream face of the dam resulting in dam failure, thus significantly increasing the hazard to the loss of life downstream. The spillway is therefore adjudged as "seriously inadequate" and the dam is assessed as unsafe, non-emergency.

The classification of "unsafe" applied to a dam because of a "seriously inadequate" spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean that there appears to be a serious deficiency in spillway capacity with the steel box cover in place and that if a severe storm were to occur, overtopping and failure of the dam could take place, significantly increasing the hazard to loss of life downstream of the dam.

LOWER HUDSON RIVER BASIN

LAKE CASSE DAM

PUTNAM COUNTY, NEW YORK
INVENTORY NO. N.Y. 1156

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

NEW YORK DISTRICT CORPS OF ENGINEERS

SEPTEMBER 1981

PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D. C., 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigations, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aid in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
LAKE CASSE DAM
I.D. NO. N.Y. 1156
D.E.C. NO. 1797
LOWER HUDSON RIVER BASIN
PUTNAM COUNTY, N.Y.

CONTENTS

APPENDICES

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

NAME OF DAM	Lake Casse Dam
STATE LOCATED	New York
COUNTY LOCATED	Putnam
STREAM	TR Croton Falls Reservoir
BASIN	Lower Hudson River
DATE OF INSPECTION	May 6, 1981

ASSESSMENT

The examination of documents and the visual inspection of Lake Casse Dam did not reveal conditions which constitute an immediate hazard to human life or property. However, the dam has some deficiencies which require further investigation and remedial action.

Using the Corps of Engineers screening criteria for review of spillway adequacy, it has been determined that with the existing steel box cover in place the dam would be overtopped for all storms exceeding approximately 28 percent of the PMF. The overtopping of the dam could cause the erosion of both abutments and the downstream face of the dam resulting in dam failure, thus significantly increasing the hazard to the loss of life downstream. The spillway is therefore adjudged as "seriously inadequate" and the dam is assessed as unsafe, non-emergency.

The classification of "unsafe" applied to a dam because of a "seriously inadequate" spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean that there appears to be a serious deficiency in spillway capacity with the steel box cover in place and that if a severe storm were

to occur, overtopping and failure of the dam could take place, significantly increasing the hazard to loss of life downstream of the dam.

It is therefore recommended that within 3 months of notification to the owner, detailed hydrologic/hydraulic investigations of the structure should be undertaken to more accurately determine the site specific characteristics of the watershed and their affect upon the overtopping potential of the dam. The results of these investigations will determine the appropriate remedial measures which will be required to achieve a spillway capacity adequate to discharge the outflow from at least the one-half PMF. Within 12 months of the date of notification to the owner, modifications to the structure, deemed necessary as a result of studies, should have been completed. In the interim, the cover should be modified or replaced to allow full outlet capacity; a detailed emergency action plan must be developed and implemented during periods of unusually heavy precipitation. Also, around-the-clock surveillance of the structure must be provided during these periods.

In addition, the dam has a number of problem areas which, if left uncorrected, have the potential for the development of hazardous conditions and must be corrected within one year. These are:

1. The downstream discharge area of the low level outlet should be cleared of all brush, debris, and growth and the channel be cleaned out to a depth which will allow free flow from the discharge pipe. Following this clearing and channel cleaning, the seepage and flow co. tions in the area of the discharge pipe and toe should be examined and the condition of the outlet pipe up to the drop inlet structure should be investigated. Appropriate repairs, if required, should be determined and carried out.

2. The brush, saplings and debris should be removed from the downstream slope. All coniferous trees should be removed while larger hardwood trees should not be removed, but should be inventoried and their condition monitored. If a tree dies, the area around the tree should then be monitored for possible seepage. A program of periodic mowing and cutting should be provided.

3. All trees and brush on the upstream face should be removed and periodic mowing and cutting provided.

4. Provide a program of periodic inspection and maintenance of the dam and appurtenances including yearly operation and lubrication of the reservoir drain system. The results of the inspection and test operation should be documented for future reference. The aforementioned emergency action plan should be maintained and updated periodically during the life of the structure.

Eugene O'Brien, P.E.
New York No. 29823

Approved by:

Col. W.M. Smith, Jr.
New York District Engineer

Date: 14 Aug 81

1. OVERVIEW

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
LAKE CASSE DAM
I.D. NO. N.Y. 1156
D.E.C. NO. 1797
LOWER HUDSON RIVER BASIN
PUTNAM COUNTY, N.Y.

SECTION 1 - PROJECT INFORMATION

1.1 GENERAL

a. Authority

The Phase I inspection reported herein was authorized by the Department of the Army, New York District, Corps of Engineers by Contract No. DACW 51-81-C-0008 dated 14 December 1980 in fulfillment of the requirements of the National Dam Inspection Act, Public Law 92-367, 8 August 1972.

b. Purpose of Inspection

The inspection was conducted to evaluate the existing conditions of the dam, to identify deficiencies and hazardous conditions, to determine if these deficiencies constitute hazards to life or property, and to recommend remedial measures where required.

1.2 DESCRIPTION OF THE PROJECT

a. Description of the Dam and Appurtenant Structures

The Lake Casse Dam is composed of an approximately 690 foot long earth embankment with a crest width of 36 feet. The maximum height of the dam is 14 feet. The upstream and downstream slopes of the dam are 1V to 3H.

An outlet box located 33.5 feet upstream of the centerline of the dam and about 250 feet from the left abutment serves as a drop inlet spillway. The upstream face of the spillway has a 24-inch sluice gate which serves as a reservoir drain. The discharge from the outlet box enters a 48-inch reinforced concrete pipeline which is located under the dam. The pipeline exits through a headwall structure at the downstream toe of the dam. The top of the outlet box is 3 feet

below the crest of the dam and has a 5 foot by 5 foot opening. The opening is covered by a steel box which contains 3 side openings. Two of the openings are 2.5 feet wide by 7 inches high and the other is 4 feet wide by 7 inches high.

b. Location

Lake Casse Dam is located on a tributary of the Croton Falls Reservoir about one mile northeast of the Village of Mahopac. Lake Road passes over the crest of the dam.

c. Size Classification

The dam is 14 feet high and has a maximum storage capacity of 182 acre-feet and therefore is classified as a small dam.

d. Hazard Classification

The dam is in the "high" hazard potential category because of its location directly upstream and in close proximity to a number of homes.

e. Ownership

Lake Casse Dam is owned by the Lake Casse Property Owners Association, P.O. Box 245, Mahopac, New York, 10541. The officer of the Association contacted was Mr. Thomas Mulligan at Tel. (914) 628-6244.

f. Purpose of Dam

The dam impounds water to provide a recreational lake for a housing subdivision.

g. Design and Construction History

The dam was designed and constructed in 1953. The designer was Roy Burgess, Consulting Engineer, Main Street, Carmel, New York. The name of the contractor is unknown.

h. Normal Operating Procedures

There is no normal operating procedure nor records of past operating procedures. Reservoir level is changed on an as-needed basis by the Association members.

1.3 PERTINENT DATA

a. Drainage Area, Square Miles	0.38
b. Discharge at Damsite, cfs	
5' Drop Inlet-Without Steel Cover	240
5' Drop Inlet-With Steel Cover and Side Openings	41
24-inch Sluice Gate	
48-inch Reinforced Concrete Pipe	240
Maximum Total Discharge Capacity (Reinforced Concrete Pipe)	240
c. Elevation, Feet Above MSL, USGS Datum	
Top of Dam	610
Maximum Design Pool	Unknown
Spillway Crest	607
Low Level Outlet	597.5
d. Reservoir	
Length of Maximum Pool (Miles)	0.46
Surface Area of Maximum Pool (acres)	37.2
Surface Area of Normal Pool (acres)	30.3
e. Storage, Acre-feet	
Reservoir at Spillway Crest	80
Reservoir at Maximum Pool	182
f. Dam	
Type	Earth Embankment
Length (feet)	690
Upstream Slope	1V:3H
Downstream Slope	1V:3H
Crest Elevation (MSL)	610
Crest Width (feet)	36'
Grout Curtain	Unknown
Cutoff Trench	3.0' deep puddled clay
g. Spillway	
Type	Uncontrolled Concrete Drop Inlet-Discharge through 48-inch RCP

Size	
Drop Inlet (without cover)	5 ft Square
Side Openings in Steel Cover at Drop Inlet	2 @ 2'-6" by 7" high 1 @ 4'-0" by 7" high
Crest Elevation	607.0
Upstream Channel	None
Downstream Channel	48-inch Diameter Pipe Discharges Through Headwall Structure into Open Channel
Auxiliary Spillway	None

h. Reservoir Drain and Pipeline

Reservoir Drain	24-inch Sluice Gate Discharges into Bottom of Drop Inlet at Elevation 597.5
Pipeline	Pipe in Common with Spillway

SECTION 2 - ENGINEERING DATA

2.1 GEOLOGY

The records of the owner contain no data on site geology. However, there is data available in the literature on the general geology of the area. Lake Casse Dam is located in the Hudson Highlands section of the New England Uplands Physiographic Province. The province is characterized by a low, but rugged mountain range consisting primarily of igneous and metamorphic rock. The rock underlying the Lake Casse site is Precambrian biotite granitic gneiss.

2.2 SUBSURFACE INVESTIGATIONS

There are no records of subsurface investigations carried out at the site. The "Application for the Construction" of the dam indicates the soil in the foundation and abutments to be "hardpan".

2.3 DAM AND APPURTENANT STRUCTURES

There is a drawing showing the "General Plan" and several details of the dam; this is included in Appendix A. Additionally, of the original construction application is available and included in Appendix F.

2.4 CONSTRUCTION RECORDS

No information has been located in relation to the construction of the project. The name(s) of the contractor(s) is (are) unknown.

2.5 OPERATION RECORDS

There are no operation records kept for the dam. No systematic monitoring of the performance of the dam is in effect.

2.6 EVALUATION OF DAM

There is sufficient data available to support a Phase I evaluation of the dam.

SECTION 3 - VISUAL INSPECTION

3.1 FINDINGS

a. General

The visual inspection of the Lake Casse Dam was made on 6 May 1981. The weather was overcast and the temperature was in the mid 60's. At the time of the inspection, the lake level was just above the spillway crest level.

b. Dam

The horizontal and vertical alignment of the crest of the dam show no signs of stress, deformation, or cracking. The upstream and downstream slopes of the earth embankment are heavily overgrown with trees and shrubs. The upstream slope of the dam suffers from local erosion at a level near the current water level.

The downstream slope of the dam appears to be somewhat irregular due to fill which has been placed to widen the crest subsequent to the construction of the dam. A complete view of the downstream slope and toe area was obscured by the dense brush and tree growth (See Photo No. 3).

There is no emergency action plan for the project.

c. Spillway

The drop inlet spillway, which was originally an open box culvert with 5 foot square opening, has been covered with a steel plate box with three small side openings. The steel plate box significantly reduces the discharge capacity of the inlet. The concrete sills of the spillway appear to be in good condition. Discharge was flowing through the side openings at the time of the inspection (See Photo No. 6).

The drop inlet spillway discharges through the 48-inch pipeline which is discussed in paragraph 3.1d.

d. Outlets and Pipelines

The 24-inch reservoir drain, which is located in the drop inlet tower at a depth below crest level of 12.75 feet, was unobservable. The sluice gate is however, reportedly operable and is used whenever required to lower the reservoir.

The sluice gate and drop inlet spillway discharge through a 48-inch reinforced concrete pipeline. The downstream exit of the pipeline is clogged for about 3/4 of its depth by silting and debris. This severely restricts the flow capacity of the pipeline. At the time of the inspection, the water entering the spillway could not be seen discharging at the silted-up pipe exit, but the discharge could have been observed in the channel about 50 feet downstream of the pipeline exit (See Photos No. 8 and 9).

e. Abutments

The abutment/dam contacts and abutments are in good condition. There does not appear to be any low point or erosion in these areas.

f. Reservoir Area

The reservoir is located in a hilly lightly developed residential area. No slides, rock falls, or sloughing were observed around the reservoir. There is no visible sediment accumulation in the reservoir.

3.2 EVALUATION OF OBSERVATIONS

Although deficiencies were observed, there is no indication that the dam is in imminent danger. A number of the deficiencies observed in the previous paragraphs are minor and can be corrected by increased maintenance. Other conditions described above, however, represent conditions which may have potential for further deterioration and for this reason these conditions need to be investigated or corrected.

The most significant feature requiring correction and further investigation is the condition of the discharge area of the 48-inch low level outlet pipe. Previous reports in 1969 (see Appendix F) have stated that although water was entering the drop inlet structure, none was exiting from the 48-inch outlet pipe downstream of the dam. Therefore, it was concluded that the pipe was broken within the dam allowing the water to exit through some crevice in the foundation and in due time could lead to failure of the dam. It also reported that the downstream slope and toe area of the dam were unobservable due to excessive brush growth.

As reported in Section 3.1c and 3.1d, these conditions still exist. However, at the time of the inspection, water was flowing in the discharge channel about 50 feet downstream of the dam at about the same rate as water was entering the drop inlet. In view of the existence of the condition for 10 years and the fact that there is no evidence of cracking, sloughing or slides on the dam the previously reached conclusions regarding the broken pipe may not be correct. However, it is still not possible to clearly identify the discharge conditions which exist at the pipeline.

It is recommended, therefore, that the downstream discharge area be cleared of all brush, debris and growth and the channel be cleaned out to a depth which will allow free flow from the discharge pipe. Following this clearing and channel cleaning of the debris, the seepage and flow conditions in the area of the discharge pipe and the toe should be examined and the condition of the outlet pipe through its entire length, should be investigated. Solutions appropriate to the problems identified, if any, should be determined and carried out.

Other significant deficiencies observed, which require immediate corrective action to insure the safety of the dam are listed below. The following is a summary of the problem areas encountered with the appropriate recommended action.

1. The steel box cover which has been placed over the drop inlet has significantly reduced the spillway capacity. This cover should be removed and be replaced by an appropriate trash rack structure which will provide maximum spillway capacity.

2. All brush, saplings and debris should be removed from the upstream and downstream slopes. All coniferous trees should be removed while larger hardwood trees should not be removed but should be inventoried and their condition monitored. If a tree dies, the area around the tree should then be monitored for possible seepage. A program of periodic cutting and mowing should be provided.

3. The local erosion on the upstream face should be repaired by regrading the area. Slope protection should then be provided to prevent a reoccurrence of the erosion.

4. A program of periodic inspection and maintenance of the dam and appurtenances including yearly test operation and lubrication of the gates should be provided. The results of the inspection and test operation should be documented for future reference. An emergency action plan described in Section 7.1d should be established, maintained and periodically updated during the life of the structure.

SECTION 4 - OPERATION AND MAINTENANCE PROCEDURES

4.1 PROCEDURES

No written operation and maintenance procedures exist for the project. There is no scheduled operation of the project.

4.2 MAINTENANCE OF THE DAM

There is no regular maintenance schedule for the dam and no regular maintenance is performed on the dam or appurtenances.

4.3 WARNING SYSTEM IN EFFECT

No warning system is in effect or in preparation.

4.4 EVALUATION

The overall maintenance of Lake Casse Dam is considered inadequate in the following areas:

1. The area of the low level outlet discharge is clogged with brush, silt and debris.

2. The upstream and downstream slopes are not kept clear of brush, trees and debris. The upstream slope is subject to erosion.

3. No formal operation and maintenance manual exists for the project.

SECTION 5 - HYDROLOGIC/HYDRAULIC

5.1 DRAINAGE AREA CHARACTERISTICS

The Lake Casse Dam is located at the southern end of Lake Casse in Carmel Township, Putnam County, New York (Hydrologic Unit Code 02030101). The area of the drainage basin is 0.38 square miles, with a maximum (east-west) width of 0.6 miles and a maximum (north-south) length of 0.8 miles. The area is moderately developed, with low rolling hills, and wide valleys. Land cover ranges from lawns to woodlands, and rises from a lake elevation of 607 feet (MSL) to just over 750 feet in the northwestern corner of the basin.

5.2 ANALYSIS CRITERIA

The analysis of the adequacy of the spillway was performed by developing a design flood, suing the unit hydrograph method, the Probable Maximum Precipitation (PMP) and the HEC-1DB computer program. The all season 200 square mile 24 hour PMP for the Lake Casse area of 22 inches was obtained from Hydrometeorological Report No. 33. The unit hydrographs were computed using Snyder's method and coefficients of 2 and 0.5 for C_t and C_p, respectively. Rainfall loss parameters of 1.0 inch initial loss and 0.1 inch per hour constant loss were assumed.

In accordance with the Recommended Guidelines for Safety Inspection of Dams (Ref. 1), the adequacy of the spillway was analyzed using the Probable Maximum Flood (PMF). Two multi-plan analysis were performed using 0.25, 0.50, 0.75 and full PMF for the spillway with, then without the steel cover.

5.3 SPILLWAY CAPACITY

An outlet box located 33.5 feet upstream of the centerline of the dam 250 feet from the left abutment serves as a drop inlet type spillway. The sill level for the spillway is 3 feet below the crest of the dam at El 607. Total sill length as designed and built is 20 feet. The spillway discharges through a 48-inch concrete pipe under the dam. There is currently a steel box cover with 3 small side openings over the top of the drop inlet significantly reducing the spillway capacity.

The computed maximum discharges of the spillway with and and without steel cover are 41 cfs and 240 cfs respectively when lake surface is at El 610 (top of dam).

5.4 RESERVOIR CAPACITY

The normal capacity of the reservoir is listed as 80 acre-feet. The computed surcharge storage between spillway crest elevation 607 feet and top of dam El 610 is 102 acre-feet, which is equivalent to about 5 inches of runoff over the entire basin.

5.5 FLOODS OF RECORD

There are no records of floods or maximum reservoir elevations at the dam.

5.6 OVERTOPPING POTENTIAL

The potential of the dam being overtopped was investigated on the basis of the spillway discharge capacity and the available surcharge storage to meet the selected design flood inflows.

The analysis was performed assuming that the water surface in the reservoir was at the spillway crest elevation at the start of the flood event. The results of the multi-plan analysis are shown below.

WITH COVER

Ratio of PMF	Inflow Peak (cfs)	Outflow Peak (cfs)	Overtopping (ft)
1.00	911	898	0.54
0.75	683	667	0.44
0.50	455	367	0.28
0.25	228	35	0.00

Spillway passes 27.5% PMF without overtopping

WITHOUT COVER

1.00	911	888	0.45
0.75	683	545	0.27
0.50	455	233	0.00
0.25	228	202	0.00

Spillway passes 53.6% PMF without overtopping

5.7 EVALUATION

With the steel box cover in place, the Lake Casse Dam spillway is unable to pass either the PMF or one-half (1/2) PMF without the dam being overtopped. The overtopping of the dam could cause the failure of the dam, thus significantly increasing the hazard for the loss of life downstream. The spillway is therefore assessed as being "seriously inadequate" and the dam is assessed as unsafe, non-emergency.

SECTION 6 - STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations

Visual observations did not indicate any structural problems with the embankment or appurtenant structures with the reservoir at its present level. There are no adverse conditions which would affect the stability of the dam at its present level. As detailed in Section 3, however, an important question exists with regard to the path of the discharge from the 48-inch low level outlet and the hydraulic capacity of the drop inlet spillway structure with its cover in place. During flood conditions these situations increase the potential for overtopping and erosion of the downstream face of the dam.

b. Design and Construction Data

A design drawing has been located for the project. A review of this drawing does not reveal any potential structural stability problems.

c. Operating Records

There are no operating records presently kept or available. There are no records or reports of any operational problems which would effect the stability of the dam.

d. Post-Construction Changes

There are no reported post-construction changes to the dam or appurtenant structures. There was however the addition of a metal box structure over the drop inlet spillway as described in Section 3. The addition of this metal box structure significantly reduces the spillway capacity and thus during flood conditions increases the potential for overtopping and failure of the dam.

e. Seismic Stability

In accordance with recommended Phase I guidelines, the dam is located in Seismic Risk Zone No. 1. However, based on past local seismic experience, the New York State Geological Survey recommended that the damsite is to be considered in Zone 2.

SECTION 7 - ASSESSMENT/RECOMMENDATIONS

7.1 ASSESSMENT

a. Safety

Examination of the available documents and visual inspections of the Lake Casse Dam and appurtenant structures did not reveal conditions which constitute an immediate hazard to human life or property. However, the dam has some deficiencies which require further investigation and remedial action.

Using the Corps of Engineers screening criteria for review of spillway adequacy, it has been determined that with the steel box cover in place that the dam would be overtopped for all storms exceeding approximately 28 percent of the PMF. The overtopping of the dam could cause the erosion of the abutments and the downstream face of the dam resulting in dam failure, thus significantly increasing the hazard for loss of life downstream. The spillway is therefore adjudged as "seriously inadequate" and the dam is assessed as unsafe, non-emergency.

The classification of "unsafe" applied to a dam because of a "seriously inadequate" spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean, however, that based on an initial screening and preliminary computations, that with the steel box over in place, there appears to be a serious deficiency in spillway capacity so that if a severe storm were to occur, overtopping and failure of the dam would take place, significantly increasing the hazard to loss of life downstream from the dam.

b. Adequacy of Information

The report and its conclusions are based on a visual inspection, interview data, contract drawings, and office hydrologic and hydraulic studies. This information and data are adequate for a Phase I inspection.

c. Need for Additional Investigations

Since the spillway is considered to be "seriously inadequate" with the metal box cover in place, additional hydrologic/

hydraulic investigations are required to more accurately determine the site specific characteristics of the watershed. After the in-depth hydrologic/hydraulic investigations have been completed, remedial measures must be initiated to provide spillway capacity sufficient to discharge the outflow from the one-half (1/2) PMF event.

In addition, as described in Section 3.2, an investigation should be carried out to study the low level outlet discharge conditions and to carry out the appropriate remedial measures.

d. Urgency

The additional hydrologic/hydraulic investigations which are required must be initiated within 3 months from the date of notification. Within 12 months of notification, remedial measures as a result of these investigations must be initiated, with completion of these measures during the following year. In the interim, develop an emergency action plan for the notification of downstream residents and proper governmental authorities in the event of overtopping, and provide around-the-clock surveillance of the dam during periods of extreme runoff. The other problem areas listed below must be corrected within one year from notification.

7.2 RECOMMENDED MEASURES

Recommended measures are as follows:

1. The steel box cover which has been placed over the drop inlet should be removed and replaced by an appropriate trash rack structure which will provide maximum spillway capacity.

2. All brush, saplings and debris should be removed from the downstream slope. All coniferous trees should be removed, while larger hardwood trees should not be removed but should be inventoried and their condition monitored. If a tree dies, the area around the tree should then be monitored for possible seepage. A program of periodic mowing and cutting should be provided.

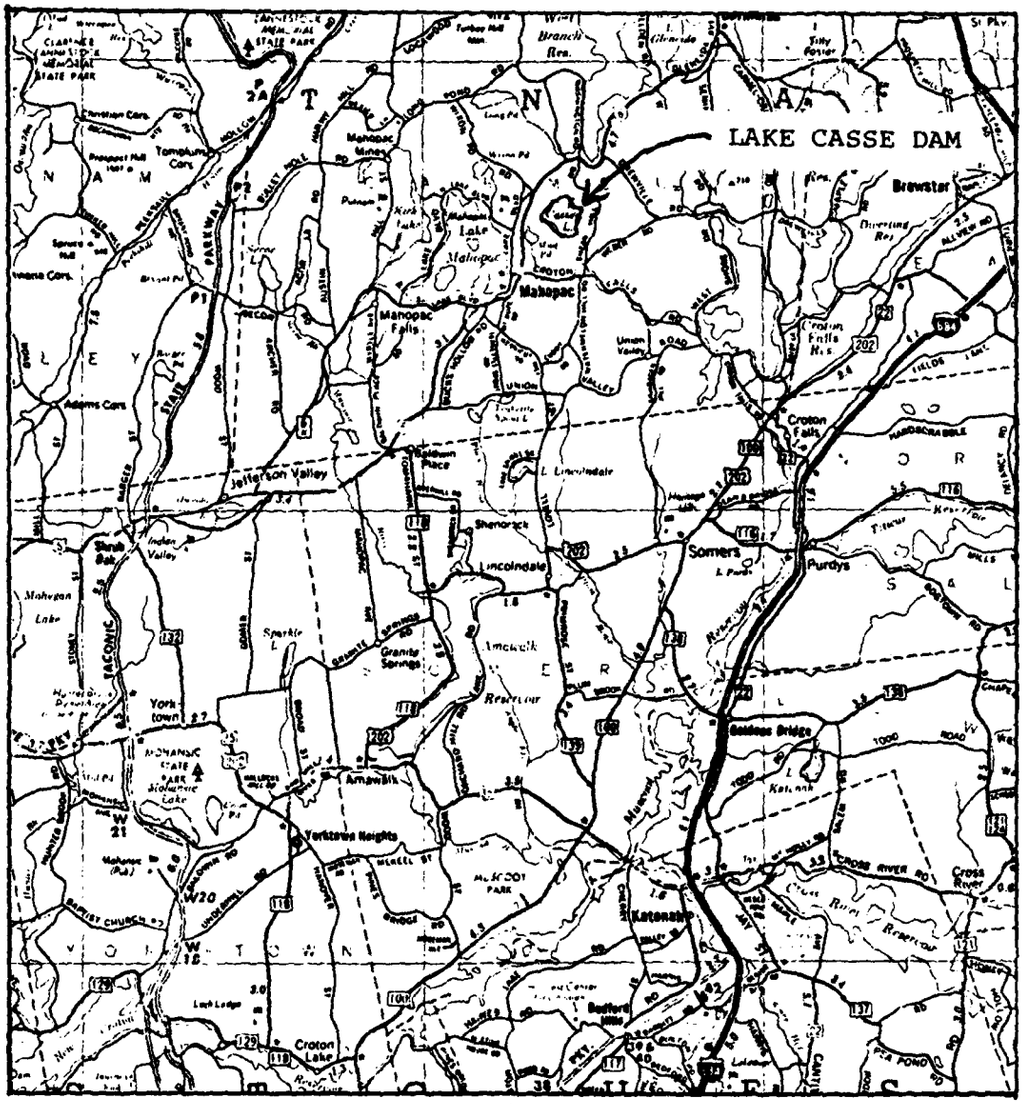
3. The local erosion on the upstream face should be repaired by regrading the area. Slope protection should then be provided to prevent a reoccurrence of the erosion.

4. A program of periodic inspection and maintenance of the dam and appurtenances including yearly test operation and lubrication of the reservoir outlet system should be provided. The results of the inspection and test operation should be documented for future reference. The emergency action plan described in Section 7.1d should be maintained and updated periodically during the life of the structure.

DRAWINGS

a. Vicinity Map
b. Topographic Map
c. Plan Sections and Details

APPENDIX A

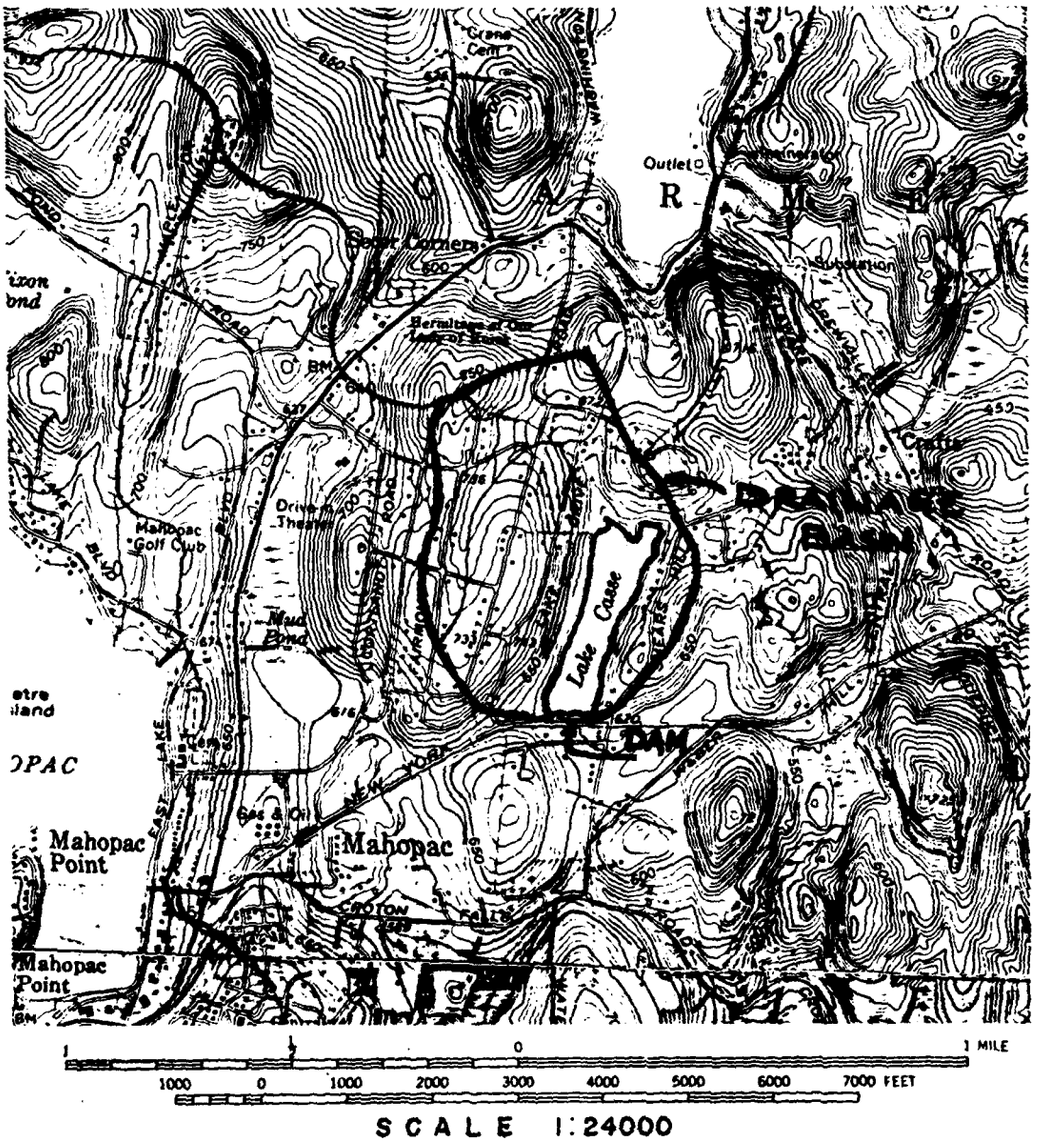


Scale: 1"=2.2 Miles

LAKE CASSE DAM

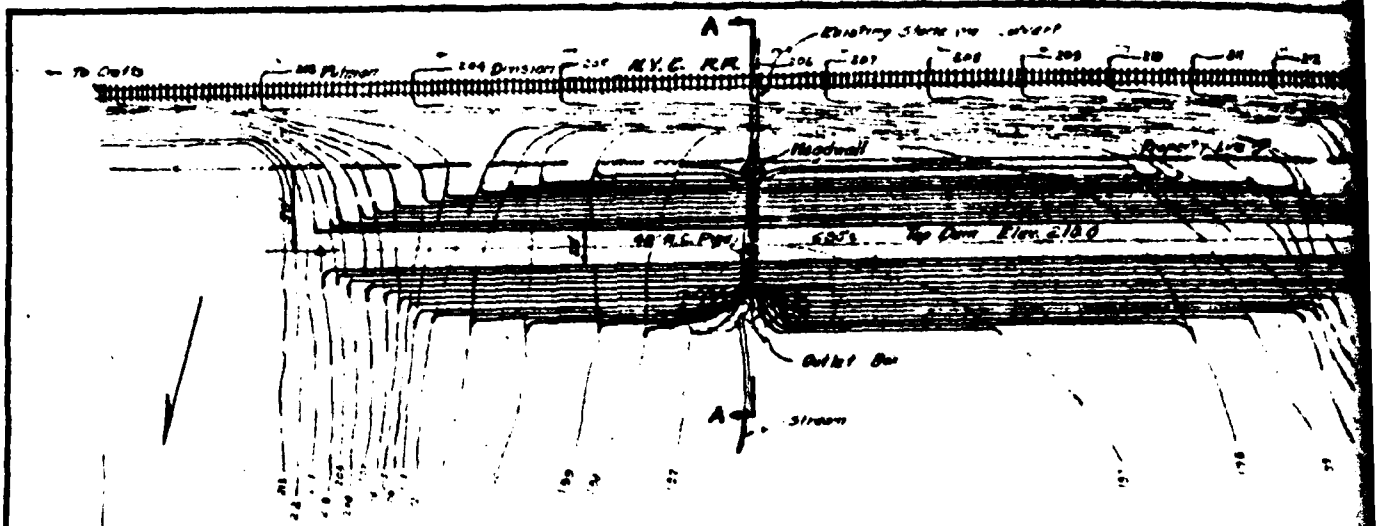
VICINITY MAP

LAKE CARMEL N.Y. QUAD



SCALE 1:24000

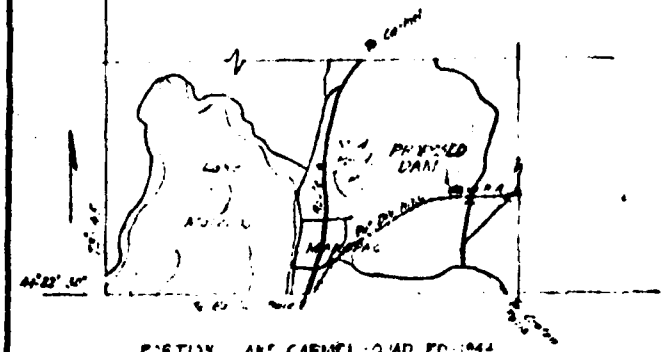
TOPOGRAPHIC MAP
LAKE CASSE DAM



GENERAL PLAN

Scale 1" = 50'

LEGEND

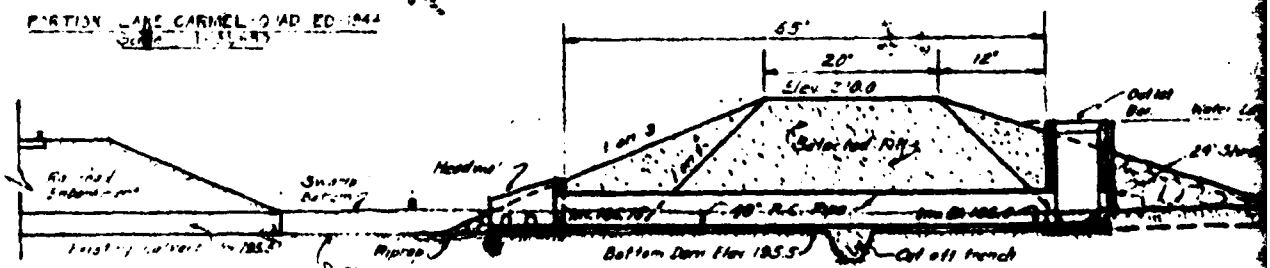


PORTION OF CARMEL QUAD ED 1944

Scale 1" = 2000'

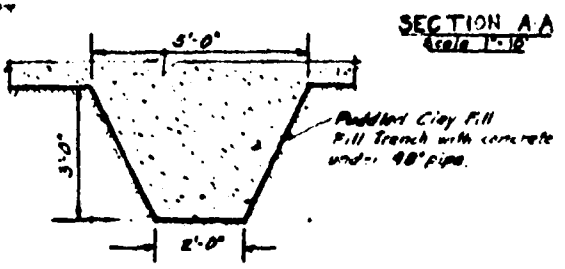
Notes:

1. Entire dam site to be m...
material.
2. Selected fill to be a mixture of ...
20% of which one portion ...
3. R.C.P. to be reinforced ...
4. ... gate to be wall mou...
area for 20' seating pressure
5. Keys to be at right angles to ...
6. Cut off trench to extend ...



SECTION A-A

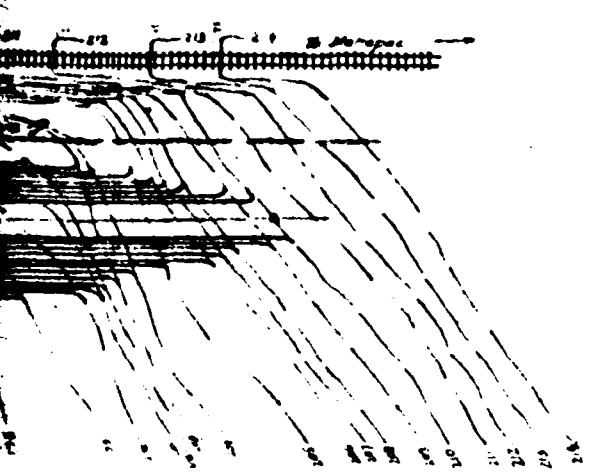
Scale 1" = 10'

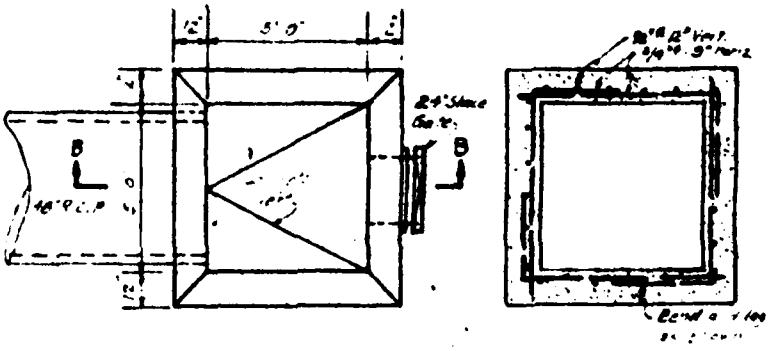


CUTOFF TRENCH

Scale 1" = 1'-0"

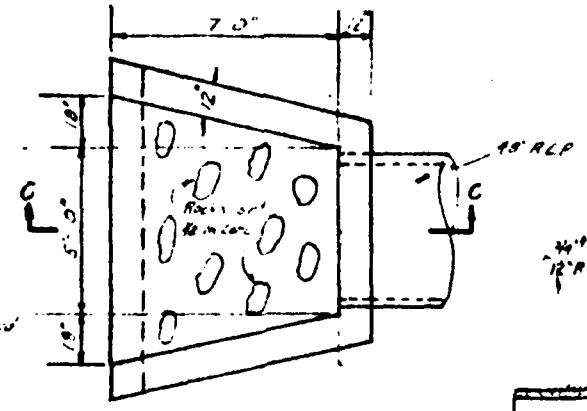
ROY BURGESS, Consulting Engineer



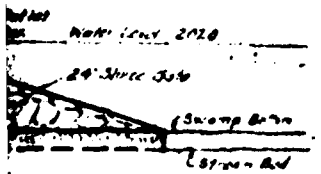


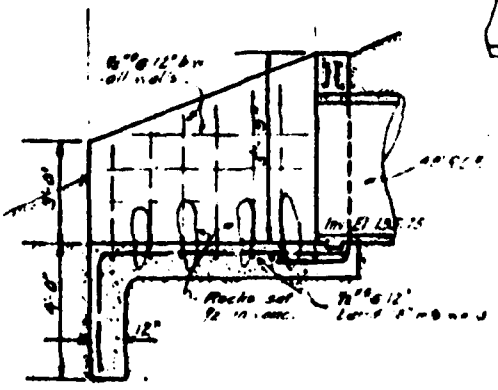
PLAN

SECTIONAL PLAN

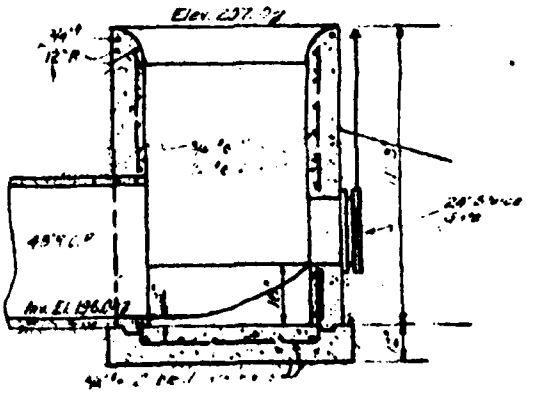


PLAN





SECTION C C
HEADWALL
Scale 1/4" = 1'-0"



SECTION B B
OUTLET BOX
Scale 1/4" = 1'-0"

DAM ON PROPERTY OF
LOUIS CASAGRANDE -
MAHOPAC TOWN OF CARMEL
PUTMAN CO. N.Y.
Scale As Noted May 1959

PHOTOGRAPHS

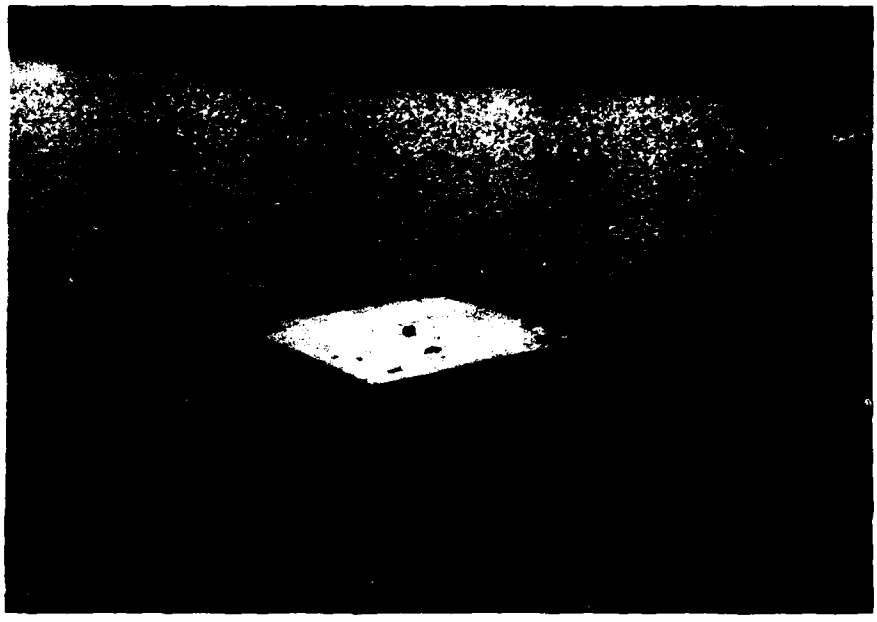
APPENDIX B

2. VIEW ALONG CREST OF DAM FROM RIGHT ABUTMENT

3. VIEW OF DOWNSTREAM FACE OF DAM

4. VIEW OF UPSTREAM FACE OF DAM

5. CLOSEUP OF UPSTREAM FACE OF DAM



6. DROP INLET SPILLWAY/OUTLET STRUCTURE

7. CO
OUT
PIP

8. CLOSEUP OF OUTLET PIPE

9. DISCHARGE CHANNEL 50 FEET DOWNSTREAM OF OUTLET PIPE

VISUAL INSPECTION CHECKLIST

APPENDIX C

VISUAL INSPECTION CHECKLIST

1) Basic Data

a. General

Name of Dam Long Pond Dam No. 3

Fed. I.D. # NY00115 DEC Dam No. 1

River Basin Mamus River

Location: Town North Castle County Westchester

Stream Name Unnamed Drainage

Tributary of Mamus River

Latitude (N) 41-08.5 Longitude (W) 073-40.4

Type of Dam Earth and Rockfill

Hazard Category High (1)

Date(s) of Inspection 9 June 1981

Weather Conditions Overcast & intermittent showers

Reservoir Level at Time of Inspection 470.5± (Estimated Based on USGS Map)

b. Inspection Personnel Harvey Feldman - Principal Geotechnical Eng.
John F. Wallace - Geotechnical Engineer

c. Persons Contacted (Including Address & Phone No.) Mr. K. Karl Mueller
Long Pond Ct., Windmill Farms, Armonk, N.Y. 10504
(914)-273-8074

d. History:

Date Constructed Unknown (Circa 1935) Date(s) Reconstructed —

Designer Elwyne E. Seelye & Co., Consulting Engineers N.Y., N.Y.

Constructed By Unknown

Owner Mr. K. Karl Mueller, Long Pond Ct. Armonk, N.Y.

2) Embankment

a. Characteristics

(1) Embankment Material EARTH AND Rock Fill

(2) Cutoff Type NONE KNOWN to EXIST

(3) Impervious Core NONE KNOWN to EXIST

(4) Internal Drainage System NONE KNOWN to EXIST

(5) Miscellaneous ———

b. Crest

(1) Vertical Alignment GOOD

(2) Horizontal Alignment GOOD

(3) Surface Cracks NONE

(4) Miscellaneous

c. Upstream Slope

(1) Slope (Estimate) (V:H) 1V:5H to 1V:6H

(2) Undesirable Growth or Debris, Animal Burrows NUMEROUS GOPHER
OCCATIONAL SMALL (smaller than 8" DIAM) DECIDUOUS TREES

(3) Sloughing, Subsidence or Depressions NONE observed

(4) Slope Protection NONE

(5) Surface Cracks or Movement at Toe NONE observed

d. Downstream Slope

(1) Slope (Estimate - V:H) Broken Slope 1V:1.5H to 1V:2.0H w/20' bench 20' below crest
near North Abutment spillway channel steepens to 1V:1.3H

(2) Undesirable Growth or Debris, Animal Burrows NUMEROUS MATURE AGE (8" to 18" DIAMETER) DECIDUOUS TREES - BUSHES & SHRUBS AT CREST

(3) Sloughing, Subsidence or Depressions NONE OBSERVED

(4) Surface Cracks or Movement at Toe NONE

(5) Seepage SEEPAGE AT MID-SLOPE @ SOUTH ABUTMENT - SEE SKETCH
FLOW ESTIMATED TO BE 5 TO 7 gpm. NO SOIL EROSION

(6) External Drainage System (Ditches, Trenches; Blanket) SPILLWAY CHANNEL LOCATED ON DOWNSTREAM SLOPE NEAR EAST ABUTMENT.

(7) Condition Around Outlet Structure SOME UNDER CUTTING OF SPILLWAY SLAB

(8) Seepage Beyond Toe NONE observed

e. Abutments - Embankment Contact

SEEPAGE AT CONTACT @ SOUTH ABUTMENT NEAR MIDPOINT OF SLOPE

SHEET 3

(1) Erosion at Contact NONE

(2) Seepage Along Contact AT MIDPOINT of WEST ABUTMENT - QUANTITY EST be be 5 to 7 GPM

3) Drainage System

a. Description of System NONE

b. Condition of System N/A

c. Discharge from Drainage System N/A

4 Instrumentation (Momumentation/Surveys, Observation Wells, Weirs, Piezometers, Etc.) NONE OBSERVED

5) Reservoir

a. Slopes APPEAR to be generally stable - no signs of sloughing or instability in vicinity of Dam or south shoreline

b. Sedimentation NONE

c. Unusual Conditions Which Affect Dam LOCATION of North Lake Dam immediately Upstream

6) Area Downstream of Dam

a. Downstream Hazard (No. of Homes, Highways, etc.) several residential homes -

b. Seepage, Unusual Growth NONE

c. Evidence of Movement Beyond Toe of Dam NONE

d. Condition of Downstream Channel NATURAL SWALE WITH few trees OTHERWISE GOOD

7 Spillway(s) (Including Discharge Conveyance Channel)

a. General RECTANGULAR REINFORCED Box Culvert LOCATED AT North END of DAM - 4' high by 6' wide section 54' in length including Approach and discharge slabs - Walls are 1ft thick with

b. Condition of Service Spillway some spalling of Training walls and Approach edges - Bottom slab on downstream end is cracked and partially separated approximately 3-5 feet from end. some under cutting of slope support has resulted

SHEET 5

c. Condition of Auxiliary Spillway ROADWAY EMBANKMENT LOCATED ON SOUTH END OF LAKE MAY HAVE A CREST ELEVATION ONE TO TWO FEET LOWER THAN THE EMBANKMENT CREST AND WOULD FUNCTION AS A SECONDARY SPILLWAY UNDER PMF CONDITIONS PRESENT CONDITION IS GOOD. NO SUPPORTS ARE NEEDED TWO

d. Condition of Discharge Conveyance Channel CHANNEL SECTION ON DOWNSTREAM PORTION HEAVILY RIPRAPED WITH QUARRIED MASSIVE BOULDERS - NO SIGNIFICANT EROSION - SECTION BEYOND TOE IN NATURAL CHANNEL - RELATIVELY CLEAR EXCEPT FOR OCCASIONAL DECIDUOUS TREES - GOOD CONDITION

8) Reservoir Drain/Outlet

Type: Pipe UNKNOWN Conduit ——— Other ———

Material: Concrete UNKNOWN Metal ——— Other ———

Size: UNKNOWN Length UNKNOWN

Invert Elevations: Entrance UNKNOWN Exit UNKNOWN

Physical Condition (Describe): Unobservable X

Material: UNKNOWN

Joints: _____ Alignment _____

Structural Integrity: UNKNOWN

Hydraulic Capability: UNKNOWN

Means of Control: Gate ? Valve ? Uncontrolled _____

Operation: Operable _____ Inoperable _____ Other UNKNOWN

Present Condition (Describe): OUTLET DOWNSTREAM OF DAM IS PRESUMABLY BURIED UNDER SEVERAL LARGE BOULDERS - GATE HOUSE IN SITUATED IN RESERVOIR AND WAS INACCESSABLE

9) Structural

a. Concrete Surfaces See Item 7 Spillway

b. Structural Cracking See Item 7b

c. Movement - Horizontal & Vertical Alignment (Settlement)
See Item 7b

d. Junctions with Abutments or Embankments Spillway junctions with dam are good with the exception of the downstream to of the bottom slab where erosion has occurred

e. Drains - Foundation, Joint, Face None observed

f. Water Passages, Conduits, Sluices See Item 7

g. Seepage or Leakage Leakage below downstream spillway channel slab through crack and separation located 4 to 6 feet upstream of downstream end

h. Joints - Construction, etc. None observed

i. Foundation —

j. Abutments —

k. Control Gates None

l. Approach & Outlet Channels See Item 18

m. Energy Dissipators (Plunge Pool, etc.) None

n. Intake Structures Not observable

o. Stability good

p. Miscellaneous —

10) Appurtenant Structures (Powerhouse, Lock, Catehouse, Other)

a. Description and Condition

See item 7 Spillway

NO OTHER APPURTENANT STRUCTURES WERE OBSERVED

HYDROLOGIC DATA AND COMPUTATIONS

APPENDIX D

Long Pond Dam #3.

CHECK LIST FOR DAMS
HYDROLOGIC AND HYDRAULIC
ENGINEERING DATA

AREA-CAPACITY DATA:

	Elevation * (ft.)	Surface Area (acres)	Storage Capacity (acre-ft.)
1) Top of Dam	476	11.28	178.6
2) Design High Water (Max. Design Pool)	Unknown 475±		
3) Auxiliary Spillway Crest	Low highway embankment		
4) Pool Level with Flashboards			
5) Service Spillway Crest	470	8.26	115

DISCHARGES

	Volume (cfs)
1) Average Daily	Unknown
2) Spillway @ Maximum High Water	222
3) Spillway @ Design High Water	Unknown
4) Spillway @ Auxiliary Spillway Crest Elevation	Unknown
5) Low Level Outlet	Unknown
6) Total (of all facilities) @ Maximum High Water	222±
7) Maximum Known Flood	Unknown
8) At Time of Inspection	Unknown

* All Elevations are based on Pond Level Datum
Relative to an elevation interpolated from the USGS North Lake, N.Y.
Quad. Sheet.

CREST: Embankment ELEVATION: 476

Type: Earth Fill

Width: 34' Length: 365'

Spillover NONE

Location —

SPILLWAY:

SERVICE		AUXILIARY
470' INVERT	Elevation	
4.0'H x 6.0'W box culvert	Type	
Approx 54.0' in length	Width	
	Type of Control	
✓	Uncontrolled	
	Controlled:	
	Type (Flashboards; gate)	
	Number	
	Size/Length	
	Invert Material	
	Anticipated Length of operating service	
	Chute Length	
	Height Between Spillway Crest & Approach Channel Invert (Weir Flow)	

HYDROMETEROLOGICAL GAGES: None Used

Type : _____

Location: _____

Records:

Date - _____

Max. Reading - _____

FLOOD WATER CONTROL SYSTEM:

Warning System: None

_____

Method of Controlled Releases (mechanisms):

gate valve on Reservoir Drain

_____

DRAINAGE AREA: 0.52 SQ MI

DRAINAGE BASIN RUNOFF CHARACTERISTICS:

Land Use - Type: WOODS - SMALL FARMS

Terrain - Relief: HILLY

Surface - Soil: GLACIAL TILL

Runoff Potential (existing or planned extensive alterations to existing (surface or subsurface conditions)

None observed

Potential Sedimentation problem areas (natural or man-made; present or future)

None

Potential Backwater problem areas for levels at maximum storage capacity including surcharge storage:

None.

Dikes - Floodwalls (overflow & non-overflow) - Low reaches along the Reservoir perimeter:

Location:

Elevation:

Reservoir:

Length @ Maximum Pool 0.096 (ROCKWELL'S DAM ALIGNMENT) (Miles)

Length of Shoreline (@ Spillway Crest) 0.74 mi (Miles)

TAMS

Job No. 1579-10 Sheet 1 of 85
Project LONG POND DAM NO 3 Date JUNE 18, 81
Subject HYDROLOGIC/HYDRAULIC COMPUTATIONS By LKC
HYDROLOGIC UNIT CODE NO 01100006 Ch'k. by

ASSUME:

1. BASIN UPSTREAM OF WINDMILL LAKE IS COMPLETELY CONTROLLED & WILL NOT CONTRIBUTE to LONG POND INFLOW
2. FOR ANALYSIS BASIN is divided into 3 Sub-areas
   (1) North Lake sub-area
   (2) Sub-area - 1 downstream of North Lake.
   (3) Sub area - 2 West of Long Pond extending to WINDMILL LAKE

TOTAL AREA = 0.46 SQ MILES.

SUB. AREA 1 (59.2 ac = 0.09 mi²)

L = 1900' = 0.36 miles

L_{CA} = 400' = 0.076 miles

Use $C_T = 2$ & $640 C_p = 400$ $C_p = 0.625$.

$t_p = 2(.36 \times 0.076)^{.3} = 0.68$ hrs

$t_A = 0.9/5.5 = 0.12$ hrs

For $t_R = 0.33$ hrs

$t_{PR} = t_p + 0.25(0.33 - 0.12) = 0.73$ hours

% impervious = 13/59.2 = 0.07

SUB-AREA 2 (67.5 acres = 0.11 mi²)

L = 1600' = 0.3 mile

L_{CA} = 600' = 0.11 mile

Use $C_T = 2$ & $640 C_p = 400$

$t_p = 2(0.3 \times 0.11)^{.3} =$ 0.72 hrs

$t_A = 0.75/6.5 =$ 0.13 hr

TAMS

Job No. 1579-10 Sheet 2 of 55
Project LONG POND DAM #3 Date 7-11-91
Subject HYDROLOGIC/HYDRAULIC COMPUTATIONS By DLC
Ch'k. by

SUB AREA 2 CONT % impervious $\frac{4.13}{67.5}$ 0.06

$t_{PR} = t_P + 0.25(t_R - t_P)$

FOR t_R = 0.33 hrs

$t_{PR} = 0.72 + 0.25(0.33 - 0.13) = 0.77$ hours

NORTH LAKE Sub-basin (from NORTH LAKE DAM #3 PHASE 1 REPORT)

$t_{PR} = 0.98$ hrs

$t_R = 0.33$ hrs

TAMS

Job No. 1579-10 Sheet 3 of 85

Project LONG POND DAM No 3 Date JUNE 13, 81

Subject HYDROLOGIC / HYDRAULIC COMPUTATIONS By D.L.C.

Ch'k. by J.M.D.

SPILLWAY RATING INVERT EL 410.

USE MANNING FORMULA for depth (d) = 1, 2, 3 5

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

S = 0.0025
n = 0.015

d	$\frac{1.49}{n}$	A	P	A/P	$K^{2/3}$	$S^{1/2}$	Q
1	99.3	6.	8	.75		.05	24.6
2		12	10	1.2		.05	67.3
3.5		21	13	1.6		.05	142.6

d = 4. b = 6

H/d	H	Q/b	Q_1	(See culvert chart, OPEN-CHANNEL HYDRAULICS – FLOW)	
0.3	1.2	4	24	471.2	
0.5	2.0	8.8	53	472	
1.0	4	25	150	474	Top of box culvert.
1.25	5	30	180	475	
1.375	5.5	33.5	201	475.5	
1.5	6	37	222	476	TOP OF DAM EL.
2.0	8	45	270	478	
2.5	10	53	318	480	

498 RAPIDLY VARIED FLOW

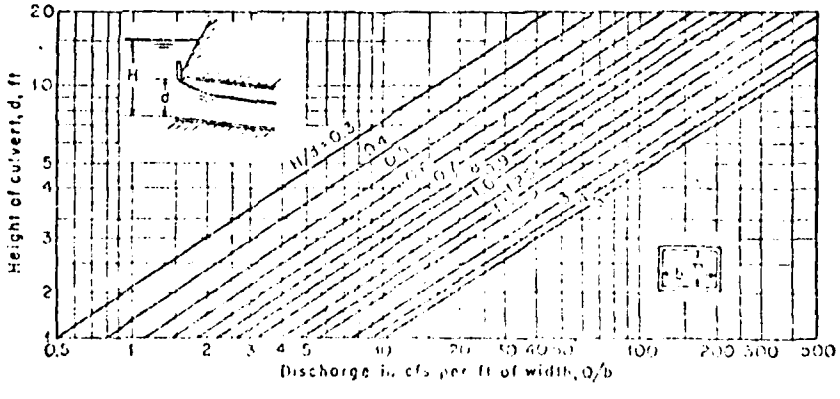


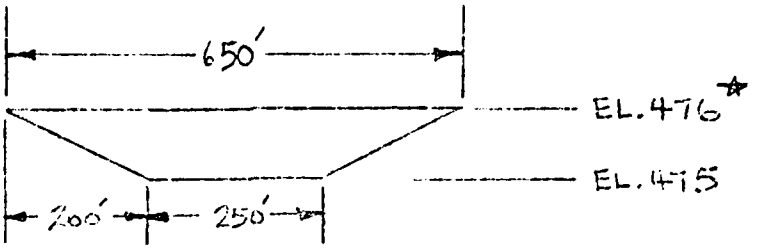
FIG. 17.29. Chart for estimating headwater on box culverts with square-edged entrances, flowing partly full. (*Based on data of U.S. Bureau of Public Roads* [29].)

TAMS

Job No. 1579-30 Sheet 4 of 35

Project Lower Pond Dam No. 3 Date 6/25/21

Subject LOW SPOT IN RESERVOIR WHICH ACTS AS SECONDARY SPILLWAY - DISCHARGE VS ELEVATION By HC & DLC Ch'k. by



ASSUME: $n = 0.025$ (LAWN & ROADWAY SURFACES)
$S = 0.001 \Rightarrow S^{1/2} = 0.032$

ELEV. (FT.)	A (FT^2)	P (FT)	R (FT)	$R^{2/3}$ ($FT^{2/3}$)	$Q = \frac{1.49}{n} A R^{2/3} S^{1/2} = 1.9072 A R^{2/3}$ (CFS)
475					0
475.5	175	450	0.39	0.53	177
476	450	650	0.69	0.78	669
478	1750	654	2.68	1.93	6433

* ABOVE EL. 476, THE SPILLWAY WIDTH WILL REMAIN AT 650 FT.

NORTH LAKE (ID # 113) - STORAGE:

ELEVATION	ΔH	AREA AC.	MEAN AREA AC.	Δ VOL AC-FT	STORAGE AC-FT.	
572		21.6			210	
	2		22.25	44.5		
574		22.9			254.5	
	1		23.25	23.25		
575		23.6			277.75	
	2		24.3	48.6		
577		25.0			326.35	
	3		26.05	78.15		
580		27.1			404.5	

TAMS

Job No. 1572-10 Sheet 5 of 6

Project Long Pond, N.B. Date

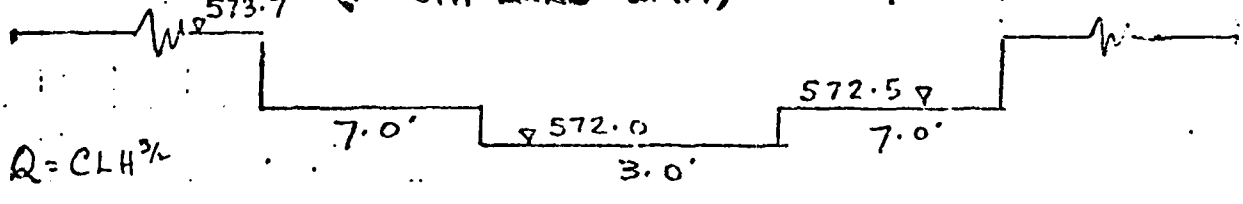
Subject Hydraulic Capacity By D.C.

Ch'k. by

LONG POND – SPILLWAY

Discharge Elevation	Q_1 (Primary Spillway)	Q_2 (SE Corner of Lake) Flow over Low Spot	Total Q_T
470	0	0	0
471.2	24	0	24
472.	53	0	53
474.	150	0	150
475	180	0	180
475.5	201	177	378
476	222	669	891
478	270	6433	6703
↑ Y4			↑ Y5

SPILLWAY DISCHARGE CAPACITY (NORTH LAKE DAM) BREADTH ≈ 60'



$Q = CLH^{3/2}$

EL.	L_1	H	C_1	Q_1 (CFS)	L_2	H	C_2	Q_2	Q_T
572	3	0	0		0		0		0
573	3	1	2.68	8	14	0.5	2.6	12.9	20.9
573.75	3	1.75	2.65	18.4	14	1.25	2.66	52.0	70.4
575	3	3	2.66	41.5	14	2.5	2.67	147.8	189.3

TAMS

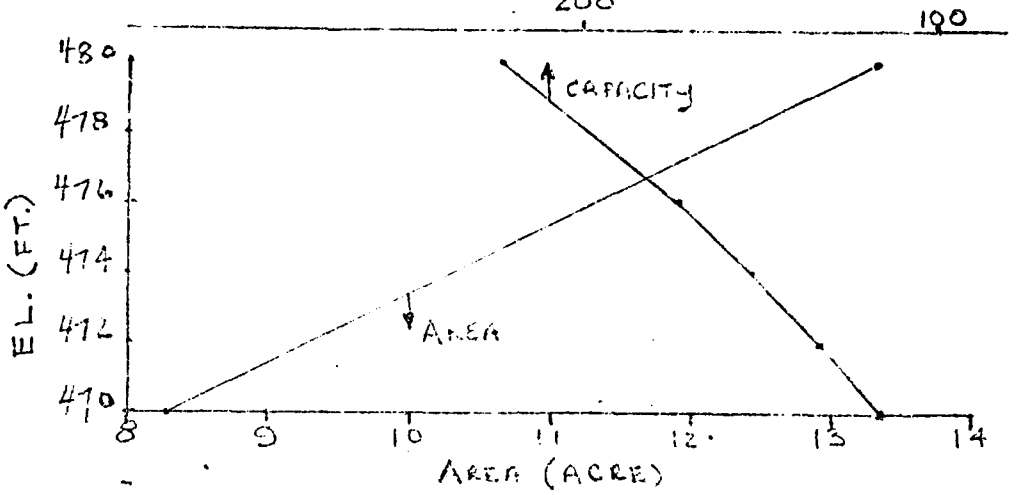
Job No. 1579-10 Sheet 6 of 85

Project LONG POND DAM No 2 Date JUNE '8

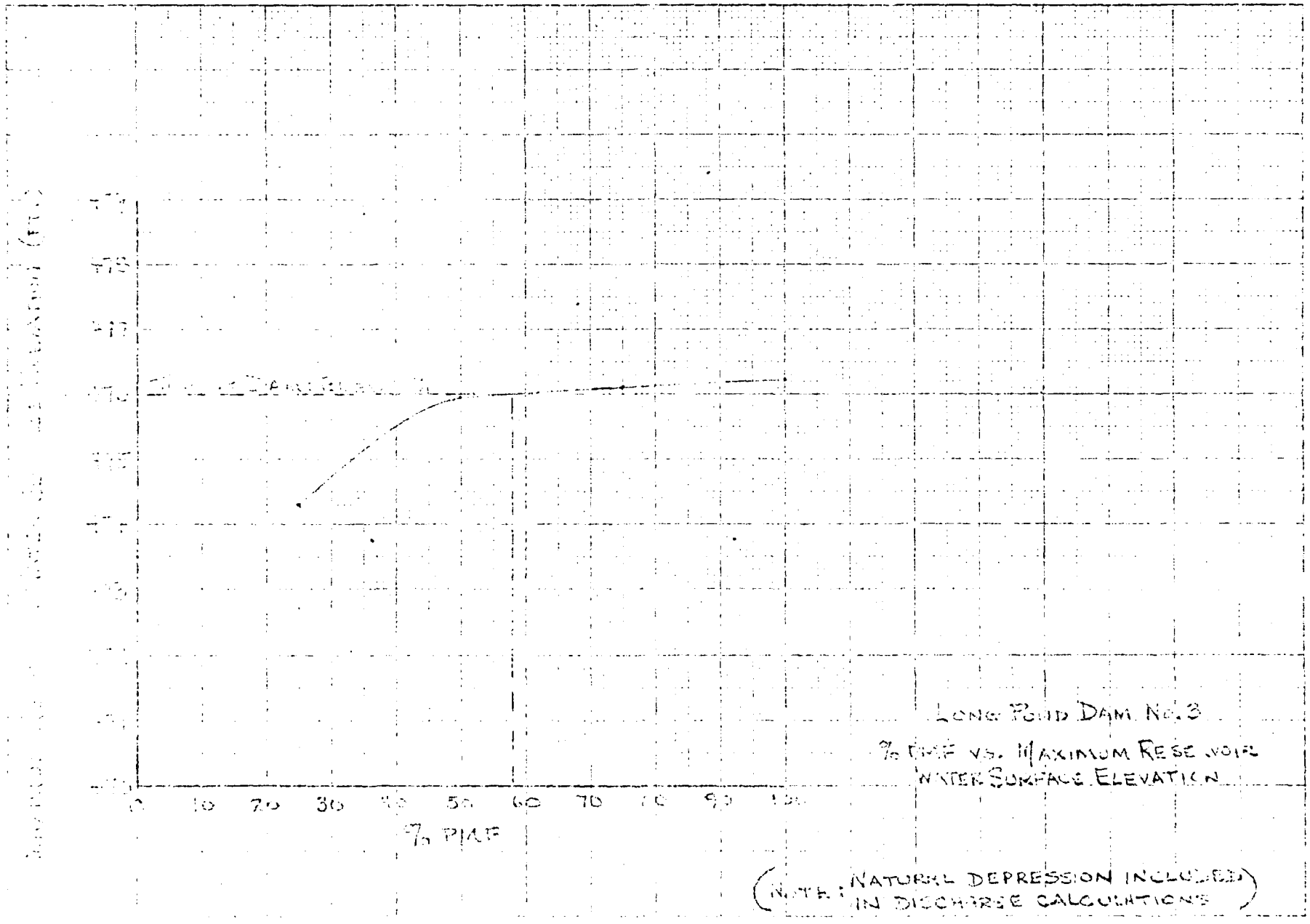
Subject HYDROLOGIC / HYDRAULIC COMPUTATION By D-C

Ch'k. by

STORAGE CAPACITY (AC-FT)



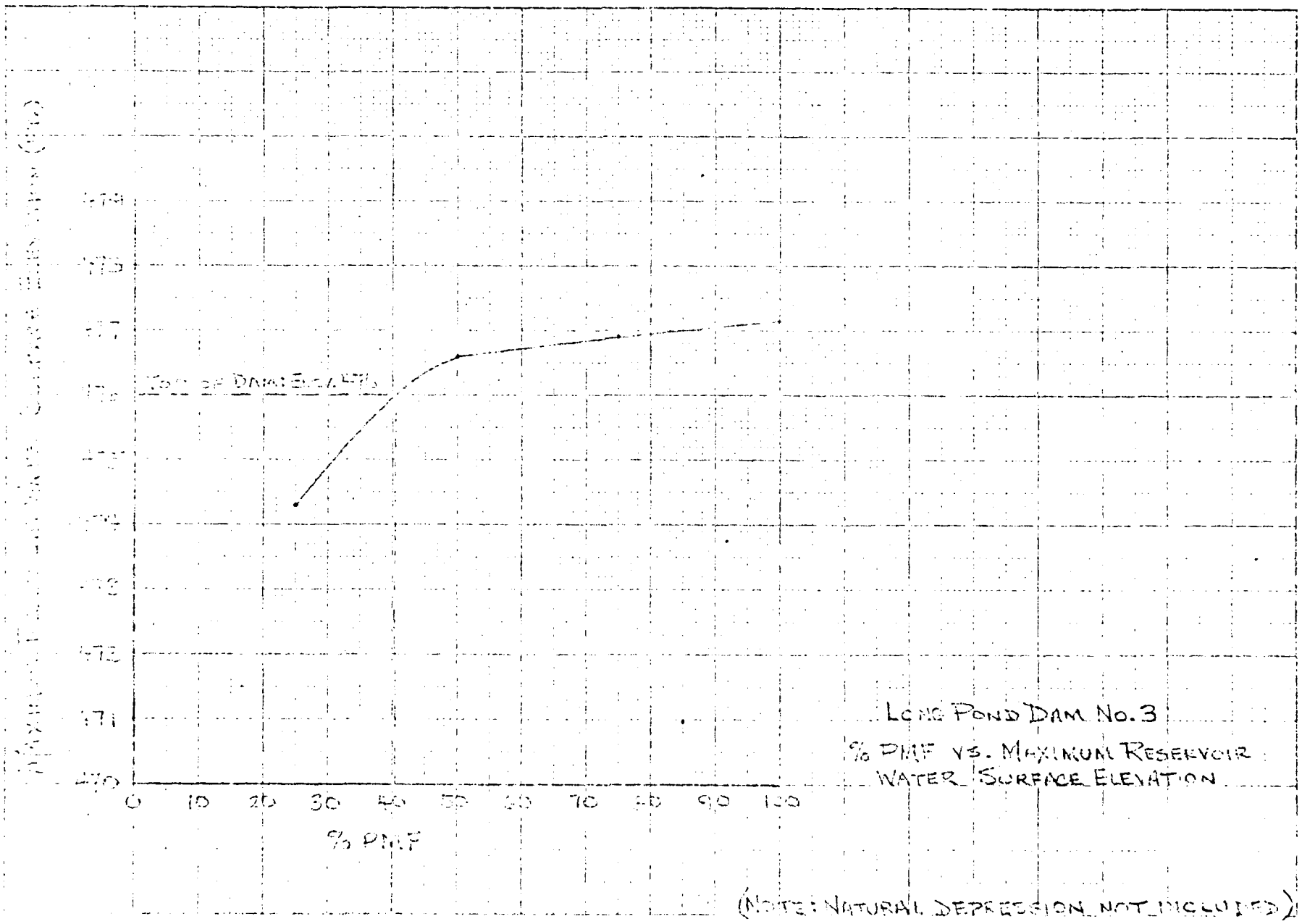
EL	Δ H	Area	Mean Area	Δ Vol	Storage
470		8.26			115*
	2		8.765	17.53	
472		9.27			132.5
	2		9.775	19.55	
474		10.28			152.1
	2		10.78	21.56	
476		11.28			173.6
	4		12.29	49.16	
480		13.3			222.8



LONG POND DAM NO. 3

% PMF VS. MAXIMUM RESERVOIR WATER SURFACE ELEVATION

(NOTE: NATURAL DEPRESSION INCLUDED IN DISCHARGE CALCULATIONS)



LONG POND DAM No. 3
% PMF VS. MAXIMUM RESERVOIR WATER SURFACE ELEVATION

(NOTE: NATURAL DEPRESSION NOT INCLUDED)

5-1.8

FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION JULY 1978
LAST MODIFIC... 01 10

JAS 1

```
     1  A1   LONG POND DAM NO 3
     2  A2   PHASE 1 SAFETY INSPECTION
     3  A3   HEC 1 DB PMF ANALYSIS
     4  E    150     0    20     0     0     0     0     0     0     0
     5  P1   5
     6  J    1     4     1
     7  J1   1   0.75   0.5   0.25
     8  K    0     1                                              1
     9  K1     1 NORTH LAKE BASIN RUN-OFF
    10  X    1     1   0.26          0.46                          1
    11  P          22   112   123   133   141
    12  T                                              1   0.1          .13
    13  W   0.98  0.625
    14  X   -1    -0.1   1.5
    15  K    1     2                                              1
    16  K1     2 ROUTE HYDROGRAPH THROUGH NORTH LAKE
    17  Y                          1     1
    18  Y1   1                                          210   -1
    19  Y4  572   573  573.75   575
    20  Y5   1   20.6   70.4   189.3
    21  YS   1   210   254.5  277.8  326.4  404.5
    22  YE  541   572   574    575    577    580
    23  YR  572
    24  YC 573.75  2.7   1.5   600
    25  K    1     3                                              1
    26  K1     3 CHANNEL ROUTE TO STATION 7+00
    27  Y                          1     1
    28  Y1   1
    29  Y6 0.035  0.035  0.035   476   500   700  0.086
    30  Y7   0     500    30     490    60    480   72    476   80    476
    31  Y7  100     480   120     490   170    500
    32  K    0     2                                              1
    33  K1     2 SUB-AREA 1 RUN-OFF
    34  X    1     1   0.09          0.46                          1
    35  P          22   112   123   133   141
    36  T                                              1   0.1          0.07
    37  W   0.73  0.625
    38  X   -1    -0.1   1.5
    39  K    2     4                                              1
    40  K1     2 COMBINE ROUTED HYDROGRAPH WITH SUB AREA 2 INFLOW
    41  K    0     2                                              1
    42  K1     3 SUB-AREA 3 RUNOFF
    43  M    1     1   0.11          0.46                          1
    44  P          22   112   123   133   141
    45  T                                              1   0.1          0.06
    46  W   0.77  0.625
    47  X   -1    -0.1   1.5
    48  K    4     3                                              1
    49  K1     3 COMBINE SUBAREA 3 WITH COMBINED HYDROGRAPH
    50  K    1    10                                              1
    51  K1    10 ROUTE THROUGH LONG POND
    52  Y                          1     1
    53  Y1   1                                          115   -1
    54  Y4  470   471.2   472    474    475   476   478   480
    55  Y5   0     24     53     150    180   222   270   318
    56  YS  115   132.5  152.1  173.6  222.8
    57  YE  471   472    474    476    480
    58  YR  471
    59  YD  476   3.09   1.5    365
    60  K   99
```

Sheet 1 of 99

```
51          K1      10 ROUTE THROUGH LONG POND
52          Y                   1       1
53          Y1      1                                                   115     -1
54          Y4      470     471.2   472     474     475     476     478     480
55          Y5      0       24      53      150     180     222     270     318
56          SS      115     132.5   152.1   173.6   222.8
57          SE      470     472     474     476     480
58          SS      470
59          SD      476     3.09    1.5     365
60          K       99
```

PREVIEW OF SEQUENCE OF STREAM NETWORK CALCULATIONS

RUNOFF HYDROGRAPH AT	1
ROUTE HYDROGRAPH TO	2
ROUTE HYDROGRAPH TO	3
RUNOFF HYDROGRAPH AT	2
COMBINE 2 HYDROGRAPHS AT	2
[illegible]	[illegible]

Sheet 10 of 50

PREVIEW OF SEQUENCE OF STREAM NETWORK CALCULATIONS

RUNOFF HYDROGRAPH AT	1
ROUTE HYDROGRAPH TO	2
ROUTE HYDROGRAPH TO	3
RUNOFF HYDROGRAPH AT	2
COMBINE 2 HYDROGRAPHS AT	2
RUNOFF HYDROGRAPH AT	3
COMBINE 2 HYDROGRAPHS AT	3
ROUTE HYDROGRAPH TO	10
END OF NETWORK	

FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION JULY 1978
LAST MODIFICATION 01 APR 80

RUN DATE = 12/1/83.
TIME = 11.12.24.

****
FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION JULY 1978
LAST MODIFICATION 01 APR 80
****

RUN DATE= 81/06/30.
TIME= 11.56.24.

LONG POND DAM NO 3
PHASE 1 SAFETY INSPECTION
HEC 1 OP PMF ANALYSIS

JOB SPECIFICATION

NS	NHR	NMIN	IDAY	IHR	IMIN	METRC	IPLT	IPRT	NSTAN
150	0	20	0	0	0	0	0	0	0

JOPER	NWT	LROPT	TRACE
5	0	0	0

MULTI-PLAN ANALYSES TO BE PERFORMED
NPLAN= 1 NRTIO= 4 LRTIO= 1
RTIOS= 1.00 .75 .50 .25

********** ********** ********** ********** **********

SUB-AREA RUNOFF COMPUTATION

1 NORTH LAKE BASIN RUN-OFF

ISTAG	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
1	0	0	0	0	0	1	0	0

HYDROGRAPH DATA

IHYDG	IUHG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	.24	0.00	.46	0.00	0.000	0	1	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.00	22.00	112.00	123.00	133.00	141.00	0.00	0.00

TRSPC COMPUTED BY THE PROGRAM IS .460

LOSS DATA

LROPT	STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0	0.00	0.00	1.00	0.00	0.00	1.00	1.00	.10	0.00	.13

UNIT HYDROGRAPH DATA
TP= .98 CP= .63 NTA= 0

RECESSION DATA
STRTQ= -1.00 QRCSN= -.10 RTIOR= 1.50
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 3.63 AND R= 2.36 INTERVALS

UNIT HYDROGRAPH 15 END-OF-PERIOD ORDINATES, LAG= .97 HOURS, CP= .62 VOL= 1.00

18.	62.	101.	103.	76.	50.	32.	21.	14.	9.
6.	4.	2.	2.	1.					

Sheet 12 of 25

END-OF-PERIOD FLOW

MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q	MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q
1.01	.20	1	.00	.00	.00	0.	1.02	1.20	76	.04	.01	.03	3.
1.01	.40	2	.00	.00	.00	0.	1.02	1.40	77	.04	.01	.03	4.
1.01	1.00	3	.00	.00	.00	0.	1.02	2.00	78	.04	.01	.03	4.
1.01	1.20	4	.00	.00	.00	0.	1.02	2.20	79	.04	.01	.03	5.
1.01	1.40	5	.00	.00	.00	0.	1.02	2.40	80	.04	.01	.03	5.
1.01	2.00	6	.00	.00	.00	0.	1.02	3.00	81	.04	.01	.03	5.

END-OF-PERIOD FLOW

MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q	MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q
1.01	.20	1	.00	.00	.00	0.	1.02	1.20	76	.04	.01	.03	3.
1.01	.40	2	.00	.00	.00	0.	1.02	1.40	77	.04	.01	.03	4.
1.01	1.00	3	.00	.00	.00	0.	1.02	2.00	78	.04	.01	.03	4.
1.01	1.20	4	.00	.00	.00	0.	1.02	2.20	79	.04	.01	.03	5.
1.01	1.40	5	.00	.00	.00	0.	1.02	2.40	80	.04	.01	.03	5.
1.01	2.00	6	.00	.00	.00	0.	1.02	3.00	81	.04	.01	.03	5.
1.01	2.20	7	.00	.00	.00	0.	1.02	3.20	82	.04	.01	.03	5.
1.01	2.40	8	.00	.00	.00	0.	1.02	3.40	83	.04	.01	.03	5.
1.01	3.00	9	.00	.00	.00	0.	1.02	4.00	84	.04	.01	.03	5.
1.01	3.20	10	.00	.00	.00	0.	1.02	4.20	85	.04	.01	.03	5.
1.01	3.40	11	.00	.00	.00	0.	1.02	4.40	86	.04	.01	.03	5.
1.01	4.00	12	.00	.00	.00	0.	1.02	5.00	87	.04	.01	.03	5.
1.01	4.20	13	.00	.00	.00	0.	1.02	5.20	88	.04	.01	.03	5.
1.01	4.40	14	.00	.00	.00	0.	1.02	5.40	89	.04	.01	.03	5.
1.01	5.00	15	.00	.00	.00	0.	1.02	6.00	90	.04	.01	.03	5.
1.01	5.20	16	.00	.00	.00	0.	1.02	6.20	91	.11	.08	.03	6.
1.01	5.40	17	.00	.00	.00	0.	1.02	6.40	92	.11	.08	.03	11.
1.01	6.00	18	.00	.00	.00	0.	1.02	7.00	93	.11	.08	.03	18.
1.01	6.20	19	.01	.00	.01	0.	1.02	7.20	94	.11	.08	.03	25.
1.01	6.40	20	.01	.00	.01	0.	1.02	7.40	95	.11	.08	.03	30.
1.01	7.00	21	.01	.00	.01	0.	1.02	8.00	96	.11	.08	.03	33.
1.01	7.20	22	.01	.00	.01	0.	1.02	8.20	97	.11	.08	.03	35.
1.01	7.40	23	.01	.00	.01	0.	1.02	8.40	98	.11	.08	.03	37.
1.01	8.00	24	.01	.00	.01	0.	1.02	9.00	99	.11	.08	.03	38.
1.01	8.20	25	.01	.00	.01	0.	1.02	9.20	100	.11	.08	.03	39.
1.01	8.40	26	.01	.00	.01	0.	1.02	9.40	101	.11	.08	.03	39.
1.01	9.00	27	.01	.00	.01	0.	1.02	10.00	102	.11	.08	.03	39.
1.01	9.20	28	.01	.00	.01	0.	1.02	10.20	103	.11	.08	.03	39.
1.01	9.40	29	.01	.00	.01	0.	1.02	10.40	104	.11	.08	.03	39.
1.01	10.00	30	.01	.00	.01	0.	1.02	11.00	105	.11	.08	.03	39.
1.01	10.20	31	.01	.00	.01	0.	1.02	11.20	106	.11	.08	.03	39.
1.01	10.40	32	.01	.00	.01	0.	1.02	11.40	107	.11	.08	.03	39.
1.01	11.00	33	.01	.00	.01	0.	1.02	12.00	108	.11	.08	.03	39.
1.01	11.20	34	.01	.00	.01	0.	1.02	12.20	109	.66	.63	.03	40.
1.01	11.40	35	.01	.00	.01	0.	1.02	12.40	110	.66	.63	.03	83.
1.01	12.00	36	.01	.00	.01	0.	1.02	13.00	111	.66	.63	.03	139.
1.01	12.20	37	.04	.01	.03	1.	1.02	13.20	112	.79	.76	.03	198.
1.01	12.40	38	.04	.01	.03	1.	1.02	13.40	113	.79	.76	.03	248.
1.01	13.00	39	.04	.01	.03	1.	1.02	14.00	114	.79	.76	.03	289.
1.01	13.20	40	.05	.01	.04	2.	1.02	14.20	115	.99	.96	.03	324.
1.01	13.40	41	.05	.01	.04	2.	1.02	14.40	116	.99	.96	.03	359.
1.01	14.00	42	.05	.01	.04	2.	1.02	15.00	117	.99	.96	.03	392.
1.01	14.20	43	.07	.01	.05	3.	1.02	15.20	118	1.72	1.69	.03	434.
1.01	14.40	44	.06	.01	.03	3.	1.02	15.40	119	4.72	4.69	.03	555.
1.01	15.00	45	.06	.01	.05	3.	1.02	16.00	120	1.05	1.02	.03	764.
1.01	15.20	46	.10	.01	.09	4.	1.02	16.20	121	.92	.89	.03	922.
1.01	15.40	47	.28	.04	.25	4.	1.02	16.40	122	.92	.89	.03	914.
1.01	16.00	48	.06	.03	.04	6.	1.02	17.00	123	.92	.89	.03	790.
1.01	16.20	49	.06	.03	.03	9.	1.02	17.20	124	.72	.69	.03	663.
1.01	16.40	50	.06	.03	.03	11.	1.02	17.40	125	.72	.69	.03	577.
1.01	17.00	51	.06	.03	.03	12.	1.02	18.00	126	.72	.69	.03	506.
1.01	17.20	52	.06	.03	.03	12.	1.02	18.20	127	.06	.03	.03	440.
1.01	17.40	53	.06	.03	.03	12.	1.02	18.40	128	.06	.03	.03	362.
1.01	18.00	54	.06	.03	.03	11.	1.02	19.00	129	.06	.03	.03	271.
1.01	18.20	55	.00	.00	.00	9.	1.02	19.20	130	.06	.03	.03	187.
1.01	18.40	56	.00	.00	.00	8.	1.02	19.40	131	.06	.03	.03	126.

That Baf 25

1.01	19.00	57	.00	.00	.00	6.	1.02	20.00	132	.06	.03	.03	92.
1.01	19.20	58	.00	.00	.00	4.	1.02	20.20	133	.06	.03	.03	88.
1.01	19.40	59	.00	.00	.00	3.	1.02	20.40	134	.06	.03	.03	85.
1.01	20.00	60	.00	.00	.00	2.	1.02	21.00	135	.06	.03	.03	81.
1.01	20.20	61	.00	.00	.00	1.	1.02	21.20	136	.06	.03	.03	78.
1.01	20.40	62	.00	.00	.00	1.	1.02	21.40	137	.06	.03	.03	75.
1.01	21.00	63	.00	.00	.00	1.	1.02	22.00	138	.06	.03	.03	72.
1.01	21.20	64	.00	.00	.00	1.	1.02	22.20	139	.06	.03	.03	69.
1.01	21.40	65	.00	.00	.00	1.	1.02	22.40	140	.06	.03	.03	66.

1.01	19.40	59	.00	.00	.00	4.	1.02	20.20	133	.06	.03	.03	92.
1.01	19.60	60	.00	.00	.00	3.	1.02	20.40	134	.06	.03	.03	88.
1.01	19.80	61	.00	.00	.00	2.	1.02	21.00	135	.06	.03	.03	85.
1.01	20.00	62	.00	.00	.00	1.	1.02	21.20	136	.06	.03	.03	81.
1.01	20.20	63	.00	.00	.00	1.	1.02	21.40	137	.06	.03	.03	78.
1.01	20.40	64	.00	.00	.00	1.	1.02	22.00	138	.06	.03	.03	75.
1.01	20.60	65	.00	.00	.00	1.	1.02	22.20	139	.06	.03	.03	72.
1.01	20.80	66	.00	.00	.00	1.	1.02	22.40	140	.06	.03	.03	69.
1.01	21.00	67	.00	.00	.00	1.	1.02	23.00	141	.06	.03	.03	66.
1.01	21.20	68	.00	.00	.00	1.	1.02	23.20	142	.06	.03	.03	64.
1.01	21.40	69	.00	.00	.00	1.	1.02	23.40	143	.06	.03	.03	61.
1.01	22.00	70	.00	.00	.00	1.	1.03	0.00	144	.06	.03	.03	59.
1.01	22.20	71	.00	.00	.00	1.	1.03	.20	145	0.00	0.00	0.00	56.
1.01	22.40	72	.00	.00	.00	1.	1.03	.40	146	0.00	0.00	0.00	54.
1.02	0.00	73	.00	.00	.00	1.	1.03	1.00	147	0.00	0.00	0.00	52.
1.02	.20	74	.04	.01	.03	1.	1.03	1.20	148	0.00	0.00	0.00	50.
1.02	.40	75	.04	.01	.03	1.	1.03	1.40	149	0.00	0.00	0.00	48.
1.02	1.00	75	.04	.01	.03	2.	1.03	2.00	150	0.00	0.00	0.00	46.
													44.

SUM 24.82 21.61 3.21 11637.
(630.)(549.)(82.)(329.52)

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	922.	500.	159.	78.	11630.
CMS	26.	14.	5.	2.	329.
INCHES		17.90	22.78	23.12	23.12
MM		454.78	578.69	587.15	587.15
AC-FT		248.	316.	320.	320.
THOUS CU M		306.	389.	395.	395.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 1

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	2.	0.	0.	0.	1.	1.	1.	2.	
2.	2.	3.	3.	3.	4.	6.	9.	11.	
12.	12.	12.	11.	9.	8.	6.	4.	3.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	2.	3.	4.	4.	5.	5.
5.	5.	5.	5.	5.	5.	5.	5.	5.	5.
6.	11.	18.	25.	30.	33.	35.	37.	38.	30.
39.	39.	39.	39.	39.	39.	39.	39.	49.	83.
154.	198.	248.	289.	324.	358.	392.	424.	555.	764.
765.	914.	790.	666.	577.	506.	448.	362.	271.	187.
124.	92.	88.	85.	81.	78.	75.	72.	69.	66.
64.	61.	59.	56.	54.	52.	50.	48.	46.	44.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	922.	500.	159.	78.	11630.
CMS	26.	14.	5.	2.	329.
INCHES		17.90	22.78	23.12	23.12
MM		454.78	578.69	587.15	587.15
AC-FT		248.	316.	320.	320.
THOUS CU M		306.	389.	395.	395.

Sheet 14 of 55

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 2

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
2.	2.	2.	2.	2.	3.	3.	5.	7.	8.
9.	9.	8.	7.	7.	6.	4.	3.	2.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	2.	3.	3.	3.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
5.	7.	11.	15.	20.	23.	25.	27.	28.	29.
30.	30.	30.	30.	30.	30.	30.	30.	37.	63.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 2

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
2.	2.	2.	2.	2.	3.	3.	5.	7.	8.
9.	9.	9.	8.	7.	6.	4.	3.	2.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	2.	3.	3.	3.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
5.	8.	13.	18.	22.	25.	27.	29.	28.	29.
29.	29.	29.	29.	30.	30.	30.	30.	37.	63.
104.	149.	194.	237.	263.	269.	294.	326.	416.	573.
648.	695.	698.	701.	433.	390.	330.	272.	203.	140.
95.	69.	66.	63.	61.	59.	56.	54.	52.	50.
48.	46.	44.	42.	41.	39.	37.	36.	35.	33.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	692.	375.	119.	58.	8772.
CMS	20.	11.	3.	2.	247.
INCHES		13.43	17.09	17.34	17.34
MM		341.09	434.02	440.36	440.36
AC-FT		186.	237.	240.	240.
THOUS CU M		230.	292.	296.	296.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 3

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
1.	1.	1.	1.	2.	2.	2.	3.	4.	5.
6.	6.	6.	5.	5.	4.	3.	2.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	2.	2.	2.	2.
2.	2.	2.	3.	3.	3.	3.	3.	3.	3.
3.	5.	9.	12.	15.	17.	18.	19.	19.	19.
19.	20.	20.	20.	20.	20.	20.	20.	25.	42.
70.	99.	124.	145.	162.	179.	196.	217.	278.	382.
461.	457.	395.	334.	288.	253.	223.	181.	136.	93.
65.	46.	44.	42.	41.	39.	37.	36.	35.	33.
32.	31.	29.	28.	27.	26.	25.	24.	23.	22.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	461.	250.	80.	39.	5815.
CMS	13.	7.	2.	1.	165.
INCHES		8.95	11.39	11.56	11.56
MM		227.39	289.34	293.58	293.58
AC-FT		124.	159.	160.	160.
THOUS CU M		153.	195.	198.	198.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	1.	1.	1.	1.	1.	2.	2.	3.

3.	3.	3.	3.	2.	2.	1.	1.	1.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
2.	3.	4.	6.	7.	8.	9.	9.	9.	10.
10.	10.	10.	10.	10.	10.	10.	10.	12.	21.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100.	139.	191.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

3.	3.	3.	3.	2.	2.	1.	1.	1.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
2.	3.	4.	6.	7.	8.	9.	9.	9.	10.
10.	10.	10.	10.	10.	10.	10.	10.	12.	21.
35.	50.	67.	79.	81.	89.	98.	109.	139.	191.
231.	22.	197.	167.	144.	127.	110.	91.	69.	47.
32.	27.	22.	21.	20.	19.	19.	18.	17.	17.
16.	15.	15.	14.	14.	13.	12.	12.	12.	11.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	231.	125.	40.	19.	2907.
CMS	7.	4.	1.	1.	82.
INCHES		4.48	5.70	5.78	5.78
MM		113.70	144.67	146.79	146.79
AC-FT		62.	79.	80.	80.
THOUS CU M		77.	97.	99.	99.

********** ********** ********** ********** **********

HYDROGRAPH ROUTING

2 ROUTE HYDROGRAPH THROUGH NORTH LAKE

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
2	1	0	0	0	0	1	0	0

ROUTING DATA

QLOSS	CLOSS	AVG	IPES	ISAME	IOPT	IPMP	LSTR
0.0	0.000	0.00	1	1	0	0	0

NSTPS	NSTDL	LAG	AMSKK	X	TSK	STORA	ISPRAT
1	0	0	0.000	0.000	0.000	210.	-1

STAGE	572.00	573.00	573.75	575.00		
FLOW	0.00	20.90	70.40	189.30		
CAPACITY=	1.	210.	255.	278.	326.	405.
ELEVATION=	541.	572.	574.	575.	577.	580.

CREL	SPWID	COOW	EXPW	ELEVL	COOL	CAREA	EXPL
572.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

DAM DATA

TOPEL	COOD	EXPD	DAMWID
573.8	2.7	1.5	600.

STATION 2, PLAN 1, RATIO 1

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

Sheet 16 of 25

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	1.	1.	1.	1.
2.	2.	2.	2.	2.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	4.	5.	5.	6.	7.	8.	8.
9.	10.	11.	13.	12.	13.	13.	14.	15.	16.
19.	26.	41.	59.	124.	290.	367.	410.	491.	660.
[illegible]	923.	[illegible]	722.	619.	541.	475.	405.	324.	241.
[illegible]	169.	[illegible]	97.	87.	77.	70.	71.	74.	75.

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
0.	0.	0.	1.	1.	1.	1.	1.	1.	1.	
2.	2.	2.	2.	2.	3.	3.	3.	3.	3.	
3.	3.	3.	3.	3.	3.	3.	2.	2.	2.	
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	
2.	3.	3.	3.	3.	3.	3.	3.	3.	3.	
3.	3.	3.	4.	5.	6.	7.	8.	8.		
9.	10.	11.	11.	12.	13.	13.	14.	15.	16.	
19.	26.	41.	59.	124.	299.	367.	410.	491.	650.	
552.	923.	846.	722.	619.	541.	475.	405.	324.	241.	
172.	126.	103.	93.	87.	83.	80.	77.	74.	72.	
70.	70.	69.	68.	67.	66.	65.	64.	62.	61.	

STORAGE

210.	210.	210.	210.	210.	210.	210.	210.	210.	210.	
210.	210.	210.	210.	210.	210.	210.	210.	210.	210.	
210.	210.	210.	210.	210.	210.	210.	210.	210.	210.	
210.	210.	210.	210.	210.	210.	210.	210.	210.	210.	
210.	210.	210.	211.	211.	211.	211.	211.	211.	211.	
212.	212.	212.	212.	213.	213.	213.	213.	213.	213.	
213.	213.	213.	213.	213.	213.	213.	213.	213.	213.	
213.	213.	212.	212.	212.	212.	212.	212.	213.	213.	
213.	213.	213.	213.	213.	213.	213.	213.	213.	213.	
213.	213.	214.	214.	215.	215.	216.	217.	218.	219.	
220.	220.	221.	222.	223.	224.	224.	225.	226.	227.	
230.	234.	239.	245.	251.	255.	256.	256.	258.	260.	
262.	263.	262.	261.	259.	258.	257.	256.	255.	254.	
252.	251.	250.	250.	250.	250.	250.	249.	249.	249.	
249.	249.	249.	249.	248.	247.	247.	247.	246.	246.	

STAGE

572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.1	
572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	
572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	
572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	
572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	
572.1	572.2	572.2	572.2	572.2	572.3	572.3	572.3	572.4	572.4	
572.4	572.5	572.5	572.5	572.6	572.6	572.7	572.7	572.7	572.8	
572.9	573.1	573.3	573.6	573.8	574.0	574.1	574.1	574.1	574.2	
574.3	574.4	574.5	574.3	574.2	574.2	574.1	574.1	574.0	574.0	
573.9	573.9	573.8	573.8	573.8	573.8	573.8	573.8	573.8	573.8	
573.7	573.7	573.7	573.7	573.7	573.7	573.7	573.6	573.6	573.6	

PEAK OUTFLOW IS 923. AT TIME 40.67 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	923.	477.	142.	69.	10730.
CMS	26.	14.	4.	2.	298.
INCHES		17.07	20.38	20.53	20.53
MM		433.48	517.56	521.54	521.54
AC-FT		237.	282.	295.	295.
THOUS CU M		292.	348.	351.	351.

Sheet 17 of 25

STATION 2, PLAN 1, RATIO 2

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	

```
                              STATION       2, PLAN 1, RATIO 2

                             END-OF-PERIOD HYDROGRAPH ORDINATES

                                           OUTFLOW
          0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
          0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
          0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
          0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
          0.        0.        0.        0.        0.        0.        1.        1.        1.        1.
          1.        1.        2.        2.        2.        2.        2.        2.        2.        2.
          2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
          2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
          2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
          2.        2.        3.        3.        3.        4.        4.        5.        6.        6.
          7.        7.        5.        8.        9.       10.       10.       11.       11.       12.
         14.       17.       21.       34.       50.       66.      165.      285.      362.      487.
        632.      690.      638.      546.      468.      409.      359.      307.      246.      185.
        134.      100.       82.       74.       71.       70.       69.       68.       66.       65.
         64.       63.       61.       60.       59.       57.       55.       54.       52.       51.

                                           STORAGE
        210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
        210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
        210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
        210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
        210.      210.      210.      210.      210.      211.      211.      211.      211.      211.
        211.      211.      212.      212.      212.      212.      212.      212.      212.      212.
        212.      212.      212.      212.      212.      212.      212.      212.      212.      212.
        212.      212.      212.      212.      212.      212.      212.      212.      212.      212.
        212.      212.      212.      212.      212.      212.      212.      212.      212.      212.
        212.      213.      213.      213.      214.      214.      215.      215.      216.      217.
        217.      215.      216.      219.      220.      220.      221.      221.      222.      223.
        225.      228.      232.      237.      242.      247.      252.      254.      256.      258.
        260.      260.      260.      259.      257.      256.      256.      255.      254.      252.
        251.      255.      250.      249.      249.      249.      248.      248.      245.      247.
        247.      246.      246.      245.      245.      244.      244.      243.      243.      242.

                                           STAGE
      572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
      572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
      572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
      572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
      572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
      572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1
      572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1
      572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1
      572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1
      572.1     572.1     572.1     572.1     572.2     572.2     572.2     572.2     572.3     572.3
      572.3     572.4     572.4     572.4     572.4     572.5     572.5     572.5     572.5     572.6
      572.7     572.8     573.0     573.2     573.4     573.7     573.9     574.0     574.0     574.1
      574.2     574.2     574.2     574.2     574.1     574.1     574.0     574.0     574.0     573.9
      573.9     573.8     573.8     573.8     573.8     573.7     573.7     573.7     573.7     573.7
      573.7     573.6     573.6     573.6     573.6     573.5     573.5     573.5     573.5     573.5

 PEAK OUTFLOW IS       690. AT TIME  40.67 HOURS

                                  PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
                          CFS      690.     342.      104.        50.        7544.
                          CMS       20.      10.        3.         1.         214.
                       INCHES              12.25     14.88      15.00        15.00
                           MM             311.21    377.89     380.87       380.87
                        AC-FT               170.      206       208.         208.
                    THOUS CU M              209.      254.      256.         256.
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Sheet 15 of 35

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                          PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME

                  CFS      690.     342.      104.       50.        7544.
                  CMS       20.      10.        3.        1.         214.
               INCHES              12.25     14.88     15.00        15.00
                   MM             311.21    377.89    380.87       380.87
                AC-FT               170.      206.      209.         209.
           THOUS CU M               209.      254.      256.         256.

                               STATION     2, PLAN 1, RATIO 3

                              END-OF-PERIOD HYDROGRAPH ORDINATES

                                           OUTFLOW
        0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
        0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
        0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
        0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
        0.       0.       0.       0.       0.       0.       0.       0.       1.       1.
        1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
        1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
        1.       1.       1.       1.       1.       1.       1.       1.       1.       2.
        2.       2.       2.       2.       2.       3.       3.       3.       4.       4.
        5.       5.       5.       6.       6.       6.       7.       7.       7.       8.
        9.      11.      14.      17.      20.      31.      43.      56.      72.     253.
      404.     456.     426.     369.     317.     276.     242.     208.     169.     129.
       96.      75.      69.      67.      65.      63.      61.      59.      57.      56.
       54.      52.      50.      49.      47.      45.      44.      42.      41.      39.

                                           STORAGE
      210.     210.     210.     210.     210.     210.     210.     210.     210.     210.
      210.     210.     210.     210.     210.     210.     210.     210.     210.     210.
      210.     210.     210.     210.     210.     210.     210.     210.     210.     210.
      210.     210.     210.     210.     210.     210.     210.     210.     210.     210.
      210.     210.     210.     210.     210.     210.     210.     210.     211.     211.
      211.     211.     211.     211.     211.     211.     211.     211.     211.     211.
      211.     211.     211.     211.     211.     211.     211.     211.     211.     211.
      211.     211.     211.     211.     211.     211.     211.     211.     211.     211.
      211.     211.     211.     211.     211.     211.     212.     212.     212.     212.
      212.     212.     212.     212.     212.     213.     213.     214.     214.     214.
      213.     215.     216.     216.     216.     217.     217.     217.     218.     219.
      220.     222.     225.     228.     232.     236.     240.     244.     249.     254.
 [illegible]   257.     257.     256.     255.     254.     254.     253.     252.     251.
 [illegible]   249.     247.     247.     247.     247.     246.     245.     245.     244.
      243.     243.     242.     242.     241.     241.     240.     239.     239.     238.

                                            STAGE
     572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
     572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
     572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
     572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
     572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
     572.0    572.0    572.0    572.1    572.1    572.1    572.1    572.1    572.1    572.1
     572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1
     572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1
     572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1
     572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.2    572.2    572.2
     572.2    572.2    572.3    572.3    572.3    572.3    572.3    572.3    572.4    572.4
     572.4    572.5    572.7    572.8    573.0    573.2    573.3    573.5    573.8    574.0

     574.1    574.1    574.1    574.1    574.0    574.0    574.0    573.9    573.9    573.8
     573.8    573.8    573.7    573.7    573.7    573.6    573.6    573.6    573.6    573.5
     573.5    573.5    573.4    573.4    573.4    573.4    573.3    573.3    573.3    573.3

  PEAK OUTFLOW IS     456. AT TIME  40.67 HOURS

                          PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME
                 CFS [illegible] [illegible]   66.  [illegible]  [illegible]
```

Sheet 19 of 25

```
                                                                                    573.5     573.8     574.0

                   574.1     574.1     574.1     574.1     574.0     574.0     574.0     573.9     573.9     573.8
                   573.8     573.8     573.7     573.7     573.7     573.6     573.6     573.6     573.6     573.5
                   573.5     573.5     573.4     573.4     573.4     573.4     573.3     573.3     573.3     573.3

 PEAK OUTFLOW IS       456. AT TIME  40.67 HOURS

                                          PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME
                                  CFS      456.      209.       66.       32.          4781.
                                  CMS       13.        6.        2.        1.           135.
                               INCHES                7.46      9.43      9.50           9.50
                                   MM              189.57    239.40    241.39         241.39
                                AC-FT                103.      131.      132.           132.
                            THOUS CU M                128.      161.      162.           162.

                                               STATION      2, PLAN 1, RATIO 4

                                          END-OF-PERIOD HYDROGRAPH ORDINATES

                                                        OUTFLOW
                      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                      0.        0.        1.        1.        1.        1.        1.        1.        1.        1.
                      1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
                      1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
                      1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
                      1.        1.        1.        1.        1.        1.        1.        2.        2.        2.
                      2.        2.        3.        3.        3.        3.        3.        4.        4.        4.
                      5.        6.        7.        8.       10.       12.       14.       16.       19.       27.
                     41.       56.       65.      116.      143.      138.      124.      109.       91.       75.
                     69.       65.       62.       59.       56.       53.       50.       48.       46.       43.
                     41.       39.       37.       36.       34.       32.       31.       29.       28.       27.

                                                        STORAGE
                    210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
                    210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
                    210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
                    210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
                    210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
                    210.      210.      211.      211.      211.      211.      211.      211.      211.      211.
                    211.      211.      211.      211.      211.      211.      211.      211.      211.      211.
                    211.      211.      211.      211.      211.      211.      211.      211.      211.      211.
                    211.      211.      211.      211.      211.      211.      211.      211.      211.      211.
                    211.      211.      211.      211.      211.      211.      212.      212.      212.      212.
                    212.      213.      213.      213.      213.      213.      214.      214.      214.      214.
                    215.      216.      217.      219.      221.      223.      225.      228.      230.      234.
                    239.      244.      248.      251.      251.      251.      251.      251.      250.      249.
                    248.      247.      246.      245.      244.      243.      242.      241.      241.      240.
                    239.      235.      235.      237.      237.      236.      236.      235.      235.      234.

                                                         STAGE
                   572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
                   572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
                   572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
                   572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0

                                                                                              Sheet 20 of 35

                   572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
                   572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
                   572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
                   572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
                   572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
                   572.0     572.0     572.0     572.0     572.1     572.1     572.1     572.1     572.1     572.1
                   572.1     572.1     572.1     572.1     572.1     572.2     572.2     572.2     572.2     572.2
                   572.2     572.3     572.5     572.6     572.5     572.6     572.7     572.8     572.9     573.1
              [illegible] [illegible] [illegible] [illegible]  572.9     573.0     573.8     573.8     573.8  [illegible]
```

572.0 572.0 572.0 572.0 572.0 572.0

572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0
572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0
572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0
572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0
572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0 572.0
572.0 572.0 572.0 572.0 572.1 572.1 572.1 572.1 572.1 572.1
572.1 572.1 572.1 572.1 572.1 572.2 572.2 572.2 572.2 572.2
572.2 572.3 572.3 572.4 572.5 572.6 572.7 572.8 572.9 573.1
573.3 573.5 573.7 573.8 573.9 573.9 573.8 573.8 573.8 573.8
573.7 573.7 573.6 573.6 573.5 573.5 573.4 573.4 573.4 573.3
573.3 573.3 573.2 573.2 573.2 573.2 573.1 573.1 573.1 573.1

PEAK OUTFLOW IS 143. AT TIME 41.67 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	143.	79.	28.	14.	2030.
CMS	4.	2.	1.	0.	57.
INCHES		2.84	4.00	4.04	4.04
MM		72.02	101.51	102.51	102.51
AC-FT		39.	55.	56.	56.
THOUS CU M		48.	68.	69.	69.

****

HYDROGRAPH ROUTING

S CHANNEL ROUTE TO STATION 7+00

ISTAO	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
3	1	0	0	0	0	1	0	0

ROUTING DATA

QLOSS	CLOSS	AVG	IRES	ISAME	IOPT	IPMP	LSTR
0.0	0.000	0.00	1	1	0	0	0

NSTPS	NSTDL	LAG	AMSKK	X	TSK	STORA	ISPRAT
1	0	0	0.000	0.000	0.000	0.	0

NORMAL DEPTH CHANNEL ROUTING

QN(1)	QN(2)	QN(3)	ELMVT	ELMAX	RLNTH	SEL
.0350	.0350	.0350	476.0	500.0	700.	.08500

CROSS SECTION COORDINATES--STA,ELEV,STA,ELEV--ETC

0.00 500.00 30.00 480.00 60.00 480.00 72.00 476.00 80.00 476.00
100.00 480.10 120.00 490.00 170.00 500.00

STORAGE	0.00	.26	.74	1.41	2.26	3.25	4.36	5.60	6.96	8.46
	10.08	11.84	13.75	15.87	18.19	20.72	23.45	26.39	29.53	32.88

Sheet 21 of 25

OUTFLOW	0.00	191.07	776.04	1771.51	3192.90	5084.99	10228.09	14560.86	19722.81	25753.83
	32693.91	40582.41	49209.75	59032.24	70114.11	82381.95	96446.30	111798.25	128708.21	147245.45
STAGE	476.00	477.26	478.53	479.79	481.05	482.32	483.58	484.84	486.11	487.37
	488.63	489.89	491.16	492.42	493.68	494.95	496.21	497.47	498.74	500.00
FLOW	0.00	191.07	776.04	1771.51	3192.90	5084.99	10228.09	14560.86	19722.81	25753.83
	32693.91	40582.41	49209.75	59032.24	70114.11	82381.95	96446.30	111798.25	128708.21	147245.45

```
   OUTFLOW        0.00      191.07      776.04     1871.51     3892.90     6684.99    10228.09    14560.86    19722.81    25753.83
              32693.81    40592.41    49209.75    59032.24    70134.11    82581.95    96446.30   111798.25   128708.21   147245.45

     STAGE      476.00      477.26      478.53      479.79      481.05      482.32      483.58      484.84      486.11      487.37
                488.63      489.89      491.16      492.42      493.68      494.95      496.21      497.47      498.74      500.00

      FLOW        0.00      191.07      776.04     1871.51     3892.90     6684.99    10228.09    14560.86    19722.81    25753.83
              32693.81    40592.41    49209.75    59032.24    70134.11    82581.95    96446.30   111798.25   128708.21   147245.45

                                               STATION      3, PLAN 1, RTIO 1

                                                              OUTFLOW
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         1.         1.         1.         1.         1.         1.         1.
                    2.         2.         2.         2.         2.         3.         3.         3.         3.         3.
                    3.         3.         3.         3.         3.         3.         3.         2.         2.         2.
                    2.         2.         2.         2.         2.         2.         2.         2.         2.         2.
                    2.         3.         3.         3.         3.         3.         3.         3.         3.         3.
                    3.         3.         3.         4.         4.         5.         6.         7.         7.         8.
                    9.        10.        11.        11.        12.        13.        13.        14.        15.        16.
                   16.        25.        40.        56.       119.       291.       370.       404.       491.       650.
                  851.       961.       851.       724.       624.       542.       479.       406.       328.       242.
                  175.       124.       113.        93.        83.        84.        80.        77.        75.        72.
                   76.        73.        69.        62.        67.        66.        65.        64.        62.        51.

                                                                STOR
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         1.         1.
                    1.         1.         1.         1.         1.         1.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                    0.         0.         0.         0.         0.         0.         0.         0.         0.         0.

                                                                STAGE
                476.5      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0
                476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      475.0
                475.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0
                476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      475.0
                476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0
                476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0
                476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0
                476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0
                476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0
                476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.0      476.1
                476.1      476.1      476.1      476.1      476.1      476.1      476.1      476.1      476.1      476.1
                476.1      476.2      476.3      476.4      476.9      477.5      477.6      477.7      477.9      478.3
                477.6      478.7      478.6      478.4      478.2      478.0      477.9      477.7      477.6      477.4
                477.2      476.8      476.7      476.6      476.6      476.6      476.5      476.5      476.5      476.5

                476.5      476.5      476.5      476.5      476.4      476.4      476.4      476.4      476.4      476.4

                                     PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
                          CFS        921.      477.       142.        69.        10727.
                          CMS         26.       14.         4.         2.          292.
                       INCHES                17.07      20.37      20.53         20.53
                           MM               433.57     517.41     521.39        521.39
                        AC-FT                 237.       282.       284.          284.
                    THOUS CU M                292.       348.       351.          351.
```

Sheet 22 of 55

```
          476.5     476.5     476.5     476.5     476.4     476.4     476.4     476.4     476.4     476.4

                             PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
                   CFS       921.      477.       142.        69.       10327.
                   CMS        26.       14.         4.         2.         292.
                INCHES                17.07      20.37      20.53        20.53
                    MM               433.52     517.41     521.39       521.39
                 AC-FT                 237.       282.       284.         284.
            THOUS CU M                 292.       348.       351.         351.


                                   MAXIMUM STORAGE =        1.

MAXIMUM STAGE IS     473.7

                                   STATION       3, PLAN 1, RTIO 2

                                                 OUTFLOW
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        1.        1.        1.        1.
             1.        1.        2.        2.        2.        2.        2.        2.        2.        2.
             2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
             2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
             2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
             2.        2.        3.        3.        3.        4.        4.        5.        6.        6.
             7.        7.        8.        8.        9.       10.       10.       11.       11.       12.
            14.       17.       20.       33.       49.       65.      156.      284.      358.      483.
           627.      691.      649.      549.      470.      411.      360.      309.      248.      197.
           137.      101.       83.       74.       71.       69.       69.       67.       67.       65.
            64.       63.       61.       60.       58.       57.       56.       54.       53.       51.

                                                   STOR
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             1.        1.        1.        1.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.

                                                  STAGE
         476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
         476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
         476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
         476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
         476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
         476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0



         476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
         476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
         476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
         476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
         476.0     476.0     476.1     476.1     476.1     476.1     476.1     476.1     476.1     476.1
         476.1     476.1     476.1     476.2     476.3     476.4     477.0     477.5     477.6     477.9
         477.2     477.3     477.2     [illegible] 477.0  [illegible] 477.6     477.5     477.4     477.2
   [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] 477.4  476.6     476.4
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Sheet 23 of 85

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     476.0     476.0     476.0     476.0     477.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.1     476.1     476.1     476.1     476.1     476.1     476.1     476.1
     476.1     476.1     476.1     476.2     476.3     476.4     477.0     477.5     477.6     477.9
     477.2     477.3     477.2     478.0     477.9     477.7     477.6     477.5     477.4     477.2
     476.9     476.7     476.5     476.5     476.5     476.5     476.5     476.4     476.4     476.4
     476.4     476.4     476.4     476.4     476.4     476.4     476.4     476.4     476.3     476.3

                              PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME
                     CFS      691.      342.      104.       50.          7541.
                     CMS       20.       10.        3.        1.           214.
                  INCHES               12.25     14.87     14.99          14.99
                      MM              311.18    377.76    380.74         380.74
                   AC-FT                170.      206.      208.           208.
             THOUS CU M                 209.      254.      256.           255.


                                   MAXIMUM STORAGE =          1.

MAXIMUM STAGE IS      478.3

                                   STATION      3, PLAN 1, RTIO 3

                                                  OUTFLOW
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        1.        1.
         1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
         1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
         1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
         1.        1.        1.        1.        1.        1.        1.        1.        1.        2.
         2.        2.        2.        2.        2.        3.        3.        3.        4.        4.
         5.        5.        5.        6.        6.        6.        7.        7.        7.        8.
         9.       11.       14.       17.       20.       30.       43.       55.       72.      239.
       406.      450.      435.      365.      323.      273.      246.      205.      173.      129.
       100.       75.       70.       66.       66.       63.       62.       59.       58.       55.
        54.       52.       50.       49.       47.       45.       44.       42.       41.       39.

                                                   STOR
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
```

Sept 24 85

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                                                  STAGE
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
```

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                                                  STAGE
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.1
          476.1     476.1     476.1     476.1     476.1     476.2     476.3     476.4     476.5     477.4
          477.7     477.8     477.8     477.6     477.5     477.4     477.4     477.3     477.1     476.9
          476.7     476.5     476.5     476.4     476.4     476.4     476.4     476.4     476.4     476.4
          476.4     476.3     476.3     476.3     476.3     476.3     476.3     476.3     476.3     476.3

                               PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME
                      CFS      450.     209.       66.       32.         4779.
                      CMS       13.       6.        2.        1.          135.
                   INCHES               7.46      9.42      9.50          9.50
                       MM             189.55    239.30    241.29        241.29
                    AC-FT               103.      131.      132.          132.
                THOUS CU M              128.      161.      162.          162.

                                MAXIMUM STORAGE =          0.

 MAXIMUM STAGE IS     477.8

                                STATION      3, PLAN 1, RTIO 4

                                                 OUTFLOW
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        1.        1.        1.        1.        1.        1.        1.        1.
              1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
              1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
              1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
              1.        1.        1.        1.        1.        1.        1.        2.        2.        2.
              2.        2.        3.        3.        3.        3.        3.        4.        4.        4.
              5.        6.        7.        8.       10.       12.       14.       16.       19.       26.
             41.       54.       68.      112.      144.      138.      126.      109.       92.       75.
             69.       66.       62.       59.       56.       53.       51.       48.       46.       43.
             41.       39.       37.       36.       34.       32.       31.       29.       29.       27.

                                                  STOR
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
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Sheet 25 of 25

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              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
```

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      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.

                                                  STAGE
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
    476.0     476.0     476.0     476.1     476.1     476.1     476.1     476.1     476.1     476.2
    476.3     476.4     476.4     476.7     477.0     476.9     476.8     476.7     476.6     476.5
    476.5     476.4     476.4     476.4     476.4     476.4     476.3     476.3     476.3     476.3
    476.3     476.3     476.2     476.2     476.2     476.2     476.2     476.2     476.2     476.2

                               PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
                     CFS       144.       79.        28.        14.         2029.
                     CMS         4.        2.         1.         0.           57.
                  INCHES                 2.84       3.99       4.03         4.03
                      MM                72.01     101.44     102.44       102.44
                   AC-FT                  39.        55.        56.          56.
             THOUS CU M                   48.        68.        69.          69.

                                          MAXIMUM STORAGE =        0.

  MAXIMUM STAGE IS      477.0


           **********          **********          **********          **********          **********

                                              SUB-AREA RUNOFF COMPUTATION

                              2 SUB-AREA 1 RUN-OFF

                                   ISTAQ    ICOMP    IECON    ITAPE     JPLT     JPRT    INAME   ISTAGE    IAUTO
                                       2        0        0        0        0        0        1        0        0

                                                       HYDROGRAPH DATA
                          IHYDG     IUHG    TAREA     SNAP    TRSDA    TRSPC    RATIO    ISNOW    ISAME    LOCAL
                              1        1      .59     0.00      .46     0.00    0.000        0        1        0

                                                          PRECIP DATA
                                       SPFE      PMS       R6      R12      R24      R48      R72      R96
                                       0.00    22.00   112.00   123.00   133.00   141.00     0.00     0.00
  TRSPC COMPUTED BY THE PROGRAM IS   .800

                                                                                               Sh. 26 of 35

                                                          LOSS DATA
                        LROPT    STRKR    DLTKR    RTIOL    ERAIN    STRKS    RTIOK    STRTL    CNSTL    ALSMX    RTIMP
                            0     0.00     0.00     1.00     0.00     0.00     1.00     1.00      .10     0.00      .07

                                                     UNIT HYDROGRAPH DATA
                                              TP=  .73     CP= .63      NTA=  0

                                                        RECESSION DATA
```

LOSS DATA

LAUPT	STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOR	STRTL	CNSTL	ALSMX	RTIMP
0	0.00	0.00	1.00	0.00	0.00	1.00	1.00	.10	0.00	.07

UNIT HYDROGRAPH DATA

TP= .73 CP= .63 RTA= 0

RECESSION DATA

STRTQ= -1.00 QRCSN= -.10 RTIOR= 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 2.67 AND R= 1.86 INTERVALS

UNIT HYDROGRAPH 12 END-OF-PERIOD ORDINATES, LAG= .73 HOURS, CP= .63 VOL= 1.00

12. 37. 46. 33. 19. 11. 6. 4. 2. 1.
1. 0.

END-OF-PERIOD FLOW

MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q	MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q
1.01	.20	1	.00	.00	.00	0.	1.02	1.20	76	.04	.01	.03	1.
1.01	.40	2	.00	.00	.00	0.	1.02	1.40	77	.04	.01	.03	1.
1.01	1.00	3	.00	.00	.00	0.	1.02	2.00	78	.04	.01	.03	1.
1.01	1.20	4	.00	.00	.00	0.	1.02	2.20	79	.04	.01	.03	1.
1.01	1.40	5	.00	.00	.00	0.	1.02	2.40	80	.04	.01	.03	1.
1.01	2.00	6	.00	.00	.00	0.	1.02	3.00	81	.04	.01	.03	1.
1.01	2.20	7	.00	.00	.00	0.	1.02	3.20	82	.04	.01	.03	1.
1.01	2.40	8	.00	.00	.00	0.	1.02	3.40	83	.04	.01	.03	1.
1.01	3.00	9	.00	.00	.00	0.	1.02	4.00	84	.04	.01	.03	1.
1.01	3.20	10	.00	.00	.00	0.	1.02	4.20	85	.04	.01	.03	1.
1.01	3.40	11	.00	.00	.00	0.	1.02	4.40	86	.04	.01	.03	1.
1.01	4.00	12	.00	.00	.00	0.	1.02	5.00	87	.04	.01	.03	1.
1.01	4.20	13	.00	.00	.00	0.	1.02	5.20	88	.04	.01	.03	1.
1.01	4.40	14	.00	.00	.00	0.	1.02	5.40	89	.04	.01	.03	1.
1.01	5.00	15	.00	.00	.00	0.	1.02	6.00	90	.04	.01	.03	1.
1.01	5.20	16	.00	.00	.00	0.	1.02	6.20	91	.11	.08	.03	2.
1.01	5.40	17	.00	.00	.00	0.	1.02	6.40	92	.11	.08	.03	5.
1.01	6.00	18	.00	.00	.00	0.	1.02	7.00	93	.11	.08	.03	8.
1.01	6.20	19	.00	.00	.00	0.	1.02	7.20	94	.11	.08	.03	10.
1.01	6.40	20	.00	.00	.00	0.	1.02	7.40	95	.11	.08	.03	12.
1.01	7.00	21	.00	.00	.00	0.	1.02	8.00	96	.11	.08	.03	12.
1.01	7.20	22	.00	.00	.00	0.	1.02	8.20	97	.11	.08	.03	13.
1.01	7.40	23	.00	.00	.00	0.	1.02	8.40	98	.11	.08	.03	13.
1.01	8.00	24	.00	.00	.00	0.	1.02	9.00	99	.11	.08	.03	13.
1.01	8.20	25	.00	.00	.00	0.	1.02	9.20	100	.11	.08	.03	13.
1.01	8.40	26	.00	.00	.00	0.	1.02	9.40	101	.11	.08	.03	13.
1.01	9.00	27	.00	.00	.00	0.	1.02	10.00	102	.11	.08	.03	13.
1.01	9.20	28	.00	.00	.00	0.	1.02	10.20	103	.11	.08	.03	13.
1.01	9.40	29	.00	.00	.00	0.	1.02	10.40	104	.11	.08	.03	13.
1.01	10.00	30	.00	.00	.00	0.	1.02	11.00	105	.11	.08	.03	13.
1.01	10.20	31	.00	.00	.00	0.	1.02	11.20	106	.11	.08	.03	13.
1.01	10.40	32	.00	.00	.00	0.	1.02	11.40	107	.11	.08	.03	13.
1.01	11.00	33	.00	.00	.00	0.	1.02	12.00	108	.11	.08	.03	13.
1.01	11.20	34	.00	.00	.00	0.	1.02	12.20	109	.66	.63	.03	20.
1.01	11.40	35	.00	.00	.00	0.	1.02	12.40	110	.66	.63	.03	40.
1.01	12.00	36	.00	.00	.00	0.	1.02	13.00	111	.66	.63	.03	66.
1.01	12.20	37	.04	.00	.04	0.	1.02	13.20	112	.79	.76	.03	84.
1.01	12.40	38	.04	.00	.04	0.	1.02	13.40	113	.79	.76	.03	101.
1.01	13.00	39	.04	.00	.04	0.	1.02	14.00	114	.79	.76	.03	113.
1.01	13.20	40	.04	.00	.04	0.	1.02	14.20	115	.99	.95	.03	124.
1.01	13.40	41	.09	.00	.04	0.	1.02	14.40	116	.99	.95	.03	135.

Sheet 29 of 35

1.01	14.00	42	.09	.00	.04	1.	1.02	15.00	117	.99	.95	.03	147.
1.01	14.20	43	.24	.00	.15	1.	1.02	15.20	118	1.77	1.69	.03	164.
1.01	14.40	44	.24	.00	.36	1.	1.02	15.40	119	4.72	4.69	.03	232.
1.01	15.00	45	.24	.00	.36	1.	1.02	16.00	120	1.05	1.02	.03	337.
1.01	15.20	46	.19	.00	.11	1.	1.02	16.20	121	.24	.19	.05	363.
1.01	15.40	47	.24	.00	.26	1.	1.02	16.40	122	.52	.50	.03	303.
1.01	16.00	48	.24	.00	.24	1.	1.02	17.00	123	.32	.29	.03	241.
1.01	16.20	49	.24	.00	.24	1.	1.02	17.20	124	.32	.29	.03	202.

	42	.05	.00	.04	1.	1.02	15.00	117	.99	.95	.03	147.
	43	.06	.00	.06	1.	1.02	15.20	118	1.72	1.69	.03	164.
	44	.06	.00	.06	1.	1.02	15.40	119	4.72	4.69	.03	232.
	45	.06	.00	.06	1.	1.02	16.00	120	1.05	1.02	.03	337.
	46	.10	.01	.10	1.	1.02	16.20	121	.92	.89	.03	363.
	47	.29	.03	.26	1.	1.02	16.40	122	.92	.89	.03	303.
	48	.06	.02	.04	2.	1.02	17.00	123	.92	.89	.03	241.
	49	.06	.03	.03	3.	1.02	17.20	124	.72	.69	.03	202.
	50	.06	.02	.03	3.	1.02	17.40	125	.72	.69	.03	173.
	51	.06	.02	.03	4.	1.02	18.00	126	.72	.69	.03	152.
	52	.04	.01	.03	4.	1.02	18.20	127	.06	.03	.03	130.
	53	.04	.01	.03	3.	1.02	18.40	128	.06	.03	.03	98.
	54	.04	.01	.03	3.	1.02	19.00	129	.06	.03	.03	63.
	55	.06	.02	.03	3.	1.02	19.20	130	.06	.03	.03	39.
	56	.06	.03	.03	2.	1.02	19.40	131	.06	.03	.03	35.
	57	.06	.03	.03	1.	1.02	20.00	132	.06	.03	.03	34.
	58	.06	.03	.03	1.	1.02	20.20	133	.06	.03	.03	32.
19.60	59	.06	.03	.03	0.	1.02	20.40	134	.06	.03	.03	31.
20.00	60	.06	.03	.03	0.	1.02	21.00	135	.06	.03	.03	30.
20.20	61	.06	.03	.03	0.	1.02	21.20	136	.06	.03	.03	29.
20.40	62	.06	.03	.03	0.	1.02	21.40	137	.06	.03	.03	27.
21.00	63	.06	.03	.03	0.	1.02	22.00	138	.06	.03	.03	26.
21.20	64	.06	.03	.03	0.	1.02	22.20	139	.06	.03	.03	25.
21.40	65	.06	.03	.03	0.	1.02	22.40	140	.06	.03	.03	24.
22.00	66	.06	.03	.03	0.	1.02	23.00	141	.06	.03	.03	23.
	67	.06	.03	.03	0.	1.02	23.20	142	.06	.03	.03	22.
22.40	68	.06	.03	.03	0.	1.02	23.40	143	.06	.03	.03	22.
23.00	69	.06	.03	.03	0.	1.03	0.00	144	.06	.03	.03	21.
23.20	70	.06	.03	.03	0.	1.03	.20	145	0.00	0.00	0.00	20.
23.40	71	.06	.03	.03	0.	1.03	.40	146	0.00	0.00	0.00	19.
0.00	72	.06	.03	.03	0.	1.03	1.00	147	0.00	0.00	0.00	18.
.20	73	.04	.01	.03	0.	1.03	1.20	148	0.00	0.00	0.00	18.
.40	74	.04	.01	.03	0.	1.03	1.40	149	0.00	0.00	0.00	17.
1.00	75	.04	.01	.03	1.	1.03	2.00	150	0.00	0.00	0.00	16.
								SUM	24.82	21.39	3.43	4073.
									(630.)	(543.)	(87.)	(115.33)

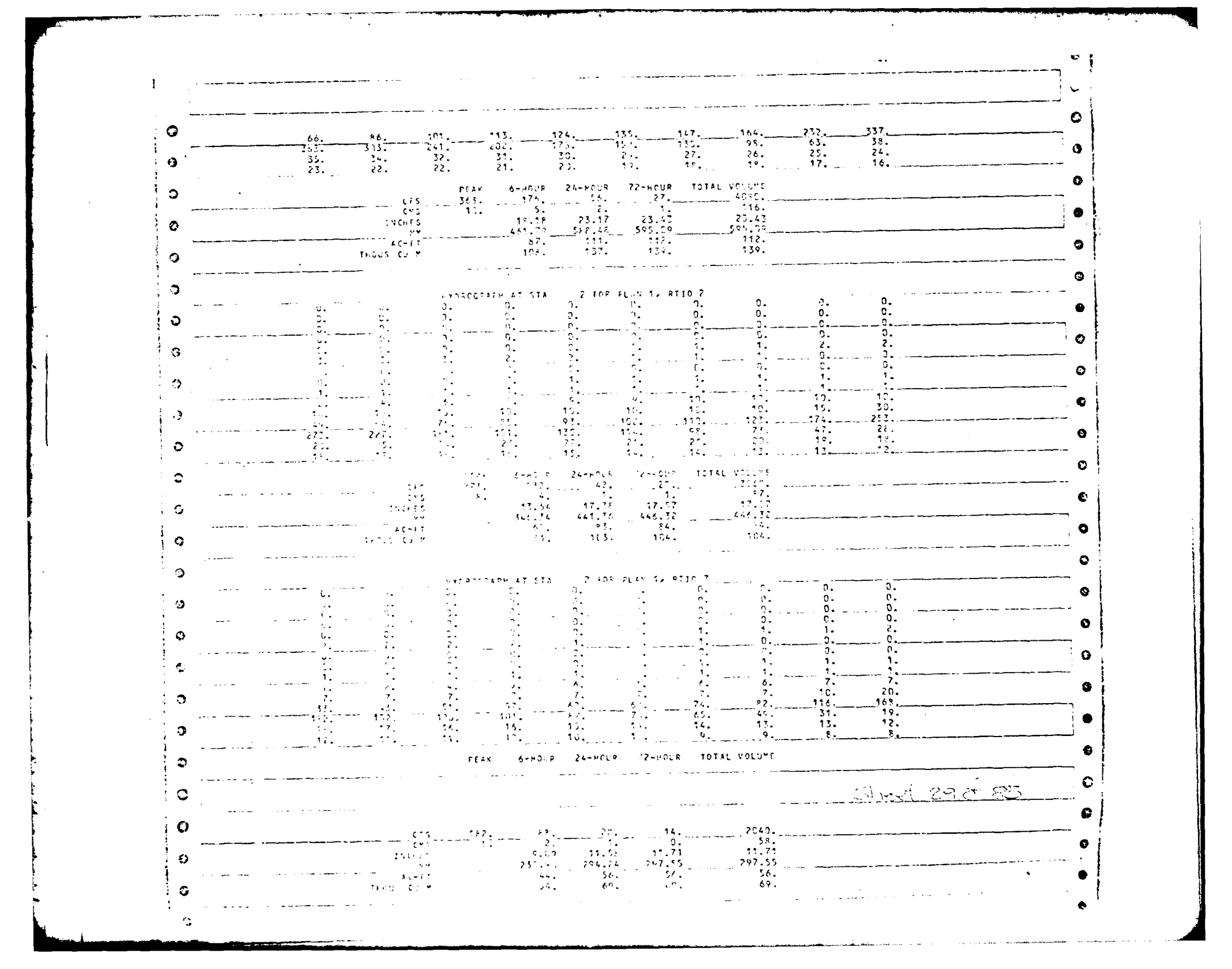
	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	243.	177.	56.	27.	4080.
CMS	10.	5.	2.	1.	116.
INCHES		18.38	23.17	23.43	23.43
MM		461.79	588.48	595.10	595.09
AC-FT		87.	111.	112.	112.
THOUS CU M		108.	137.	139.	139.

HYDROGRAPH AT STA 2 FOR PLAN 1, RTIO 1

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
0.	1.	1.	1.	1.	1.	1.	2.	3.	3.	
4.	4.	3.	3.	2.	2.	1.	1.	0.	0.	
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
0.	0.	0.	0.	1.	1.	1.	1.	1.	1.	
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	
2.	5.	7.	10.	12.	12.	13.	13.	13.	13.	
13.	13.	13.	13.	13.	13.	13.	13.	20.	40.	

66.	56.	101.	113.	124.	135.	147.	144.	232.	337.	
363.	303.	241.	202.	173.	152.	130.	98.	63.	38.	
35.	34.	32.	31.	30.	29.	27.	26.	25.	24.	
23.	22.	22.	21.	20.	19.	18.	18.	17.	16.	

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	243.	177.	56.	27.	4080.
CMS	10.	5.	2.	1.	116.



	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	182.	88.	28.	14.	2040.
CMS	5.	2.	1.	0.	58.
INCHES		9.09	11.59	11.71	11.71
MM		230.9	294.24	297.55	297.55
AC-FT		44.	56.	56.	56.
THOUS CU M		54.	69.	69.	69.

HYDROGRAPH AT STA 2 FOR PLAN 1, RTIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
[illegible]	[illegible]	[illegible]	[illegible]	0.	0.	0.	0.	0.	0.
[illegible]	[illegible]	[illegible]	[illegible]	0.	0.	0.	0.	0.	0.
[illegible]	[illegible]	[illegible]	0.	1.	0.	0.	0.	1.	1.
[illegible]	1.	1.	1.	1.	0.	0.	0.	0.	0.
[illegible]	[illegible]	[illegible]	1.	0.	0.	0.	0.	0.	0.
[illegible]	[illegible]	[illegible]	0.	0.	0.	0.	0.	0.	0.
[illegible]	[illegible]	2.	3.	3.	2.	3.	3.	3.	3.
3.	[illegible]	[illegible]	3.	3.	3.	3.	3.	3.	10.
[illegible]	21.	25.	29.	31.	34.	37.	41.	58.	54.
[illegible]	[illegible]	[illegible]	50.	43.	35.	42.	24.	16.	9.
[illegible]	[illegible]	[illegible]	[illegible]	7.	7.	7.	7.	6.	6.
[illegible]	[illegible]	[illegible]	[illegible]	5.	5.	5.	4.	4.	4.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	91.	44.	[illegible]	7.	1020.
CMS	3.	1.	0.	0.	29.
INCHES		4.05	5.74	5.86	5.86
MM		115.45	147.12	149.77	149.77
AC-FT		22.	28.	29.	29.
THOUS CU M		27.	34.	35.	35.

********** ********** ********** ********** **********

COMBINE HYDROGRAPHS

2 COMBINE ROUTED HYDROGRAPH WITH SUB AREA 2 INFLOW

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
2	2	0	0	0	0	1	0	0

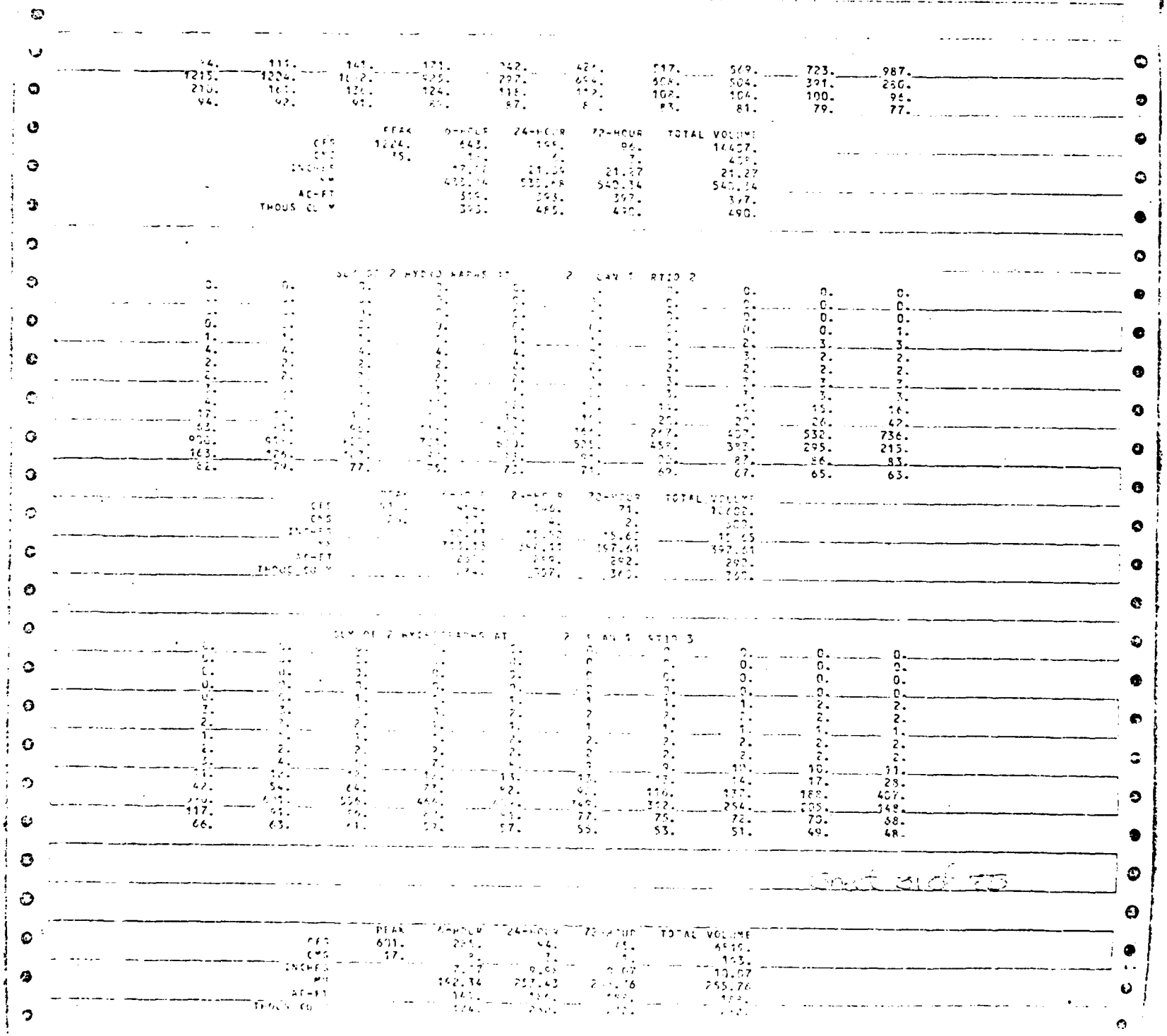
SUM OF 2 HYDROGRAPHS AT 2 PLAN 1 RTIO 5

0.	[illegible]	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	[illegible]	0.	0.	0.	0.	1.	1.
1.	1.	1.	[illegible]	1.	[illegible]	2.	3.	4.	5.
3.	4.	[illegible]	3.	3.	4.	4.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	2.	3.	3.	3.	3.	4.	4.	4.
[illegible]	4.	4.	4.	4.	4.	4.	4.	4.	4.
[illegible]	9.	11.	14.	16.	17.	19.	20.	21.	21.
22.	23.	24.	25.	23.	26.	27.	27.	35.	56.

Sheet 30 of 35

94.	111.	141.	171.	242.	424.	517.	569.	723.	987.
1215.	1224.	1092.	925.	790.	694.	605.	504.	391.	280.
206.	161.	136.	124.	113.	112.	102.	104.	100.	96.
94.	92.	91.	[illegible]	[illegible]	85.	83.	81.	79.	77.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1224.	[illegible]	[illegible]	96.	14437.
CMS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
INCHES		[illegible]	[illegible]	[illegible]	[illegible]



	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	691.	285.	[illegible]	45.	6819.
CMS	17.	[illegible]	3.	1.	193.
INCHES		7.57	9.9[illegible]	10.07	10.07
MM		192.34	257.43	255.76	255.76
AC-FT		141.	186.	188.	188.
THOUS CU M		174.	230.	232.	232.

SUM OF 2 HYDROGRAPHS AT PLAN 1, RTIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
[illegible]	[illegible]	[illegible]	4.	4.	4.	5.	5.	5.	5.
6.	6.	6.	[illegible]	6.	6.	7.	7.	9.	14.
21.	[illegible]	[illegible]	37.	41.	[illegible]	[illegible]	57.	77.	111.
[illegible]	131.	[illegible]	163.	197.	[illegible]	[illegible]	133.	109.	85.
76.	74.	73.	67.	64.	60.	57.	55.	52.	49.
47.	45.	43.	[illegible]	39.	37.	35.	34.	32.	31.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CMS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
INCHES		[illegible]	[illegible]	[illegible]	4.50
MM		[illegible]	[illegible]	114.35	114.35
AC-FT		[illegible]	[illegible]	[illegible]	84.
THOUS CU M		[illegible]	[illegible]	104.	104.

*********** *********** *********** *********** ***********

SUB-AREA RUNOFF COMPUTATION

[illegible] SUB-AREA 5 [illegible]

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
[illegible]	0	[illegible]	[illegible]	0	0	1	0	0

HYDROGRAPH DATA

IHYDG	IUHG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	[illegible]	[illegible]	[illegible]	[illegible]	0.000	0	1	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.0	[illegible]	1[illegible]2.00	1[illegible].00	133.00	141.00	0.00	0.00

TRSPC COMPUTED BY THE PROGRAM IS [illegible]

LOSS DATA

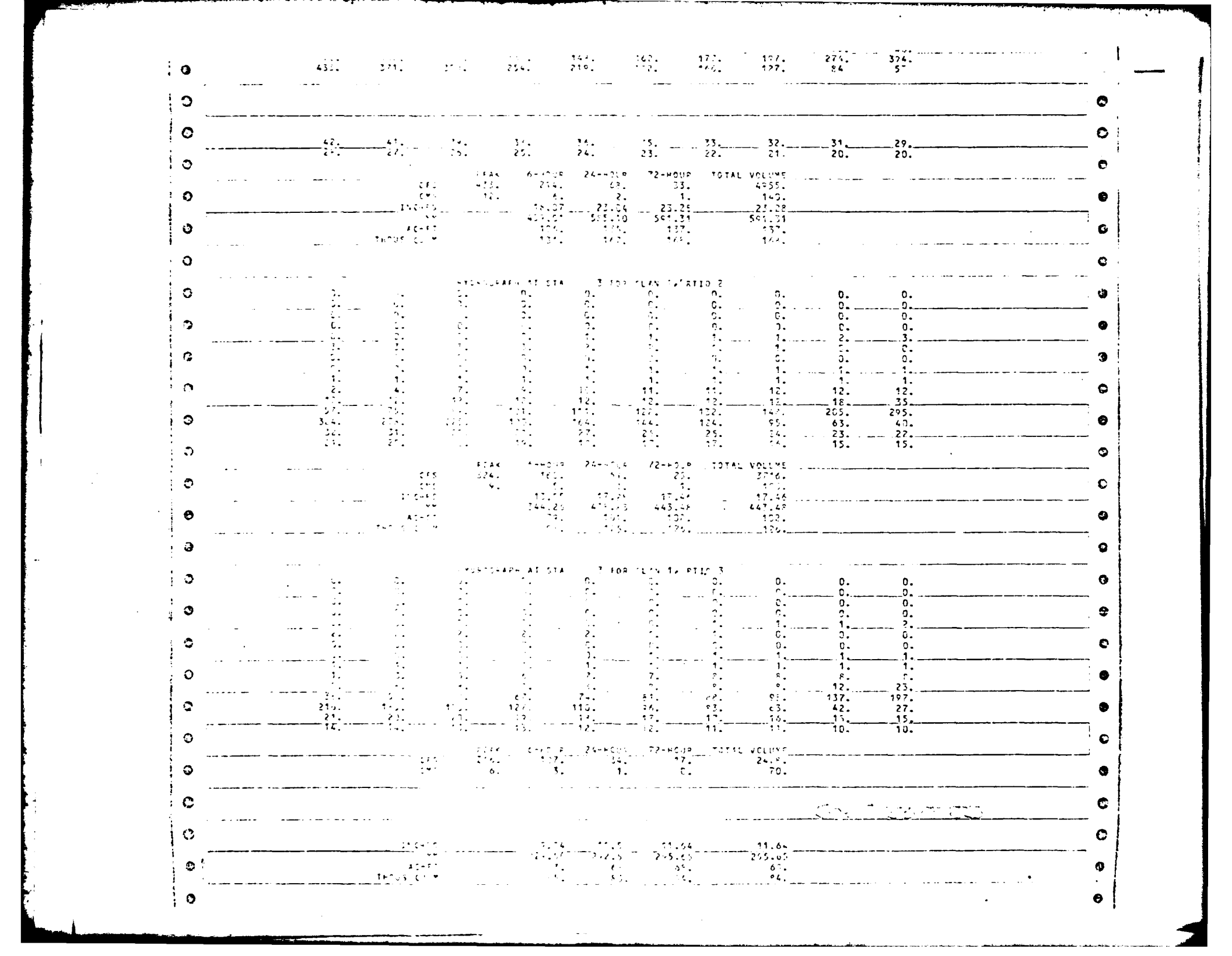
LROPT	STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.00	.10	0.00	.06

UNIT HYDROGRAPH DATA

[illegible] .77 [illegible] TAP= 0

RECESSION DATA

[illegible]



1.01	14.40	44	.06	[illegible]	.06	1.	1.02	15.40	119	4.72	4.69	.03	274.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	16.00	120	1.03	1.02	.03	394.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	16.20	121	.92	.89	.03	433.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16.40	122	.92	.89	.03	371.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17.00	123	.92	.89	.03	300.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	17.20	124	.72	.69	.03	254.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	125	.72	.69	.03	219.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.	[illegible]	[illegible]	126	.72	.69	.03	192.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.	1.02	18.20	127	.06	.03	.03	166.
1.01	17.40	[illegible]	[illegible]	[illegible]	[illegible]	4.	1.02	18.40	128	.06	.03	.03	127.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.	1.02	19.00	129	.06	.03	.03	84.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.20	130	.06	.03	.03	53.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.40	131	.06	.03	.03	42.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.	[illegible]	20.00	132	.06	.03	.03	41.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.	1.02	20.20	133	.06	.03	.03	39.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	20.40	134	.06	.03	.03	38.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	21.00	135	.06	.03	.03	36.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	21.20	136	.06	.03	.03	35.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.40	137	.06	.03	.03	33.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22.00	138	.06	.03	.03	32.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	22.20	139	.06	.03	.03	31.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22.40	140	.06	.03	.03	29.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23.00	141	.06	.03	.03	28.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	23.20	142	.06	.03	.03	27.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23.40	143	.06	.03	.03	26.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	144	.06	.03	.03	25.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.03	.20	145	0.00	0.00	0.00	24.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.03	.40	146	0.00	0.00	0.00	23.
1.02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.00	147	0.00	0.00	0.00	22.
1.02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.03	1.20	148	0.00	0.00	0.00	21.
[illegible]	[illegible]	74	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.40	149	0.00	0.00	0.00	20.
1.02	[illegible]	75	.04	[illegible]	[illegible]	[illegible]	1.03	2.00	150	0.00	0.00	0.00	20.

SUM 24.92 21.35 3.47 4959.
(630.)(542.)(88.)(140.42)

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
[illegible]	[illegible]	274.	[illegible]	33.	4959.
[illegible]	[illegible]	8.	2.	1.	140.
[illegible]		19.[illegible]	23.[illegible]	23.28	23.28
[illegible]		[illegible]	[illegible]	591.[illegible]	591.[illegible]
AC-FT		136.	135.	137.	137.
THOUS CU M		[illegible]	167.	[illegible]	169.

HYDROGRAPH AT STA [illegible] 3 FOR PLAN 1, RTIO 1

0.	0.	0.	0.
0.	0.	0.	0.
0.	0.	0.	0.
0.	0.	0.	0.
2.	2.	3.	4.
2.	1.	1.	0.
1.	0.	0.	0.
2.	1.	2.	2.
2.	2.	3.	2.
15.	16.	16.	16.
15.	16.	23.	46.
177.	197.	274.	394.
166.	127.	84.	53.

Sheet 24 of 50

42. 41. 39. [illegible] [illegible] [illegible] 33. 32. 31. 29.
21. 27. 26. 25. [illegible] [illegible] 22. 21. 20. 20.

[illegible] DATA

LROPT	STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.00	.10	0.00	.06

UNIT HYDROGRAPH DATA
TP= .77 CP= .47 NTA= 0

RECESSION DATA
STRTQ= -1.00 QRCSN= -.10 RTIOR= 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 2.?? AND R= 2.05 INTERVALS

UNIT HYDROGRAPH [illegible] END-OF-PERIOD ORDINATES, LAG= .77 HOURS, CP= .47 VOL= 1.00
[illegible] 25. [illegible] 9. 6. 3. 2.
[illegible]

END-OF-PERIOD FLOW

MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q	MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q
1.01	[illegible]	1	[illegible]	[illegible]	[illegible]	0.	1.02	1.20	76	.04	.01	.03	1.
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	0.	1.02	1.40	77	.04	.01	.03	1.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	2.00	78	.04	.01	.03	1.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	2.20	79	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	2.40	80	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	3.00	81	.04	.01	.03	2.
[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	0.	1.02	3.20	82	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	3.40	83	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	4.00	84	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	4.20	85	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	4.40	86	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	5.00	87	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	5.20	88	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	5.40	89	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	6.00	90	.04	.01	.03	2.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	6.20	91	.11	.08	.03	3.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	6.40	92	.11	.08	.03	5.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	7.00	93	.11	.08	.03	9.
1.01	[illegible]	19	[illegible]	[illegible]	[illegible]	0.	1.02	7.20	94	.11	.08	.03	12.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	7.40	95	.11	.08	.03	14.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	8.00	96	.11	.08	.03	15.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	8.20	97	.11	.08	.03	15.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	8.40	98	.11	.08	.03	16.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	9.00	99	.11	.08	.03	16.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	9.20	100	.11	.08	.03	16.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	9.40	101	.11	.08	.03	16.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	10.00	102	.11	.08	.03	16.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	10.20	103	.11	.08	.03	16.
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	10.40	104	.11	.08	.03	16.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	11.00	105	.11	.08	.03	16.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	11.20	106	.11	.08	.03	16.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	11.40	107	.11	.08	.03	16.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	12.00	108	.11	.08	.03	16.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	12.20	109	.66	.63	.03	23.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	12.40	110	.66	.63	.03	46.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	13.00	111	.66	.63	.03	76.
[illegible]	[illegible]	37	[illegible]	[illegible]	.04	[illegible]	1.02	13.20	112	.79	.76	.03	100.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	13.40	113	.79	.76	.03	119.
1.01	1	[illegible]	[illegible]	[illegible]	[illegible]	0.	1.02	14.00	114	.79	.76	.03	135.
1.01	[illegible]	40	[illegible]	[illegible]	.04	0.	1.02	14.20	115	.99	.95	.03	148.
[illegible]	[illegible]	41	[illegible]	[illegible]	.04	1.	1.02	14.40	116	.99	.95	.03	162.
[illegible]	14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	15.00	117	.99	.95	.03	177.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.05	1.	1.02	15.20	118	1.72	1.69	.03	197.
1.01	14.40	44	[illegible]	[illegible]	.06	[illegible]	1.02	15.40	119	4.72	4.69	.03	274.
1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02	[illegible]	120	[illegible]	1.07	.03	394.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	121	.92	.89	.03	433.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	122	.92	.89	.03	371.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.92	.89	.03	300.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	124	[illegible]	.69	[illegible]	254.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

INCHES			9.04	11.52	11.64	11.64			
MM			229.50	292.55	295.65	295.65			
AC-FT			53.	68.	68.	68.			
THOUS CU M			65.	83.	84.	84.			

HYDROGRAPH AT STA 3 FOR PLAN 1, RTIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
[illegible]	[illegible]	0.	0.	0.	0.	0.	0.	0.	0.
[illegible]	[illegible]	[illegible]	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
1.	1.	2.	3.	3.	4.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	6.	12.	12.
17.	23.	30.	34.	37.	41.	44.	49.	68.	98.
104.	93.	75.	63.	55.	48.	41.	32.	21.	13.
11.	10.	10.	9.	9.	9.	8.	8.	8.	7.
7.	7.	7.	6.	6.	6.	6.	5.	5.	5.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	104.	55.	17.	2.	1239.
CMS	3.	2.	0.	0.	35.
INCHES		4.52	5.76	5.82	5.82
MM		114.75	146.28	147.83	147.83
AC-FT		26.	34.	34.	34.
THOUS CU M		33.	42.	42.	42.

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COMBINE HYDROGRAPHS

2 COMBINE SUBAREA 3 WITH COMBINED HYDROGRAPH

ISTAG	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
3	2	0	0	0	0	1	0	0

SUM OF 2 HYDROGRAPHS AT 3 PLAN 1 RTIO 1

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	1.	1.	1.	1.
1.	1.	2.	2.	2.	2.	3.	4.	6.	8.
9.	10.	10.	9.	8.	7.	5.	4.	4.	4.
4.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	4.	4.	5.	5.	5.	5.
5.	6.	6.	6.	6.	6.	6.	6.	6.	6.
8.	13.	22.	26.	30.	32.	34.	35.	36.	37.
39.	39.	40.	41.	41.	42.	43.	43.	58.	103.
160.	211.	284.	306.	390.	588.	694.	765.	997.	1381.
1647.	1595.	1392.	1179.	1016.	886.	774.	631.	475.	333.

Sheet 36 of 85

253.	202.	175.	162.	154.	147.	141.	135.	131.	126.
122.	119.	117.	114.	111.	109.	105.	102.	100.	97.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1647.	850.	266.	129.	19362.
CMS	47.	24.	8.	4.	548.
INCHES		17.20	21.54	21.75	21.75
MM		436.77	547.31	552.53	552.53
AC-FT		533.	826.	933.	933.
THOUS CU M		658.	1019.	1151.	1151.

1647.	1595.	1392.	1179.	1016.	886.	774.	631.	475.	333.	

253.	202.	175.	162.	154.	147.	141.	135.	131.	126.
122.	119.	117.	114.	111.	108.	105.	102.	100.	97.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1647.	850.	266.	129.	19362.
CMS	47.	24.	8.	4.	548.
INCHES		17.20	21.56	21.75	21.75
MM		436.78	547.50	552.53	552.53
AC-FT		472.	529.	533.	533.
THOUS CU M		520.	652.	658.	658.

SUM OF 2 HYDROGRAPHS AT 3 PLAN 1 RTIO 2

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
1.	1.	1.	1.	1.	2.	2.	3.	5.	6.
7.	7.	7.	7.	6.	5.	4.	3.	3.	3.
3.	3.	3.	3.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	3.	3.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	5.	5.
6.	10.	15.	20.	22.	24.	25.	26.	27.	28.
29.	29.	30.	31.	31.	32.	32.	33.	44.	77.
120.	156.	196.	219.	253.	288.	309.	555.	737.	1031.
1224.	1196.	1045.	891.	764.	669.	582.	478.	358.	255.
195.	146.	137.	126.	120.	117.	115.	111.	109.	105.
102.	100.	97.	94.	91.	89.	86.	83.	81.	78.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1224.	619.	197.	95.	14318.
CMS	35.	18.	6.	3.	405.
INCHES		12.51	15.94	16.09	16.09
MM		317.77	404.81	408.58	408.58
AC-FT		385.	391.	394.	394.
THOUS CU M		378.	482.	487.	487.

SUM OF 2 HYDROGRAPHS AT 3 PLAN 1 RTIO 3

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
1.	1.	1.	1.	1.	1.	1.	2.	3.	4.
5.	5.	5.	4.	4.	3.	3.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	1.	1.
1.	1.	1.	2.	2.	2.	2.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
4.	7.	10.	15.	15.	16.	17.	18.	18.	19.
19.	20.	20.	20.	21.	21.	21.	22.	29.	51.
81.	104.	124.	141.	156.	179.	205.	236.	324.	604.
836.	775.	706.	593.	519.	445.	394.	318.	247.	174.
134.	112.	106.	101.	99.	94.	92.	88.	86.	82.
80.	77.	74.	71.	69.	66.	64.	62.	60.	57.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	506.	387.	128.	62.	9297.
CMS	23.	11.	4.	2.	263.
INCHES		7.82	10.35	10.44	10.44
MM		198.74	262.78	265.30	265.30
AC-FT		192.	254.	256.	256.
THOUS CU M		237.	313.	316.	316.

Sheet 37 of 38

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	506.	387.	128.	62.	9297.
CMS	23.	11.	4.	2.	263.
INCHES		7.02	10.35	10.44	10.44
MM		196.74	262.78	265.30	265.30
AC-FT		192.	254.	256.	256.
THOUS CU M		237.	313.	316.	316.

SUM OF 2 HYDROGRAPHS AT 3 PLAN 1 RTIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	2.	2.
2.	2.	2.	2.	2.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	2.	2.
2.	3.	5.	7.	7.	8.	8.	9.	9.	9.
10.	10.	10.	10.	10.	11.	11.	11.	15.	26.
48.	52.	62.	74.	79.	86.	95.	107.	145.	209.
240.	224.	207.	225.	242.	224.	200.	165.	129.	98.
68.	64.	53.	74.	77.	69.	66.	63.	60.	57.
54.	50.	49.	47.	45.	43.	41.	39.	37.	36.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	242.	156.	59.	29.	4298.
CMS	7.	4.	2.	1.	121.
INCHES		3.29	4.77	4.82	4.82
MM		83.47	121.10	122.36	122.36
AC-FT		78.	117.	118.	118.
THOUS CU M		97.	144.	146.	146.

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HYDROGRAPH ROUTING

TO ROUTE THROUGH LONG POND

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
10	1	0	0	0	0	1	0	0

ROUTING DATA

GLOSS	CLOSS	AVG	IRES	ISAME	IOPT	IPMP	LSTR
0.0	0.000	0.00	1	1	0	0	0

NSTPS	NSTDL	LAG	AMSKK	X	TSK	STORA	ISPRAT
1	0	0	0.000	0.000	0.000	115.	-1

STAGE	470.00	471.20	472.00	474.00	475.00	476.00	478.00	480.00
FLOW	0.00	24.00	53.00	150.00	180.00	222.00	270.00	318.00
CAPACITY=	115.	133.	152.	174.	223.			

Short reach 25

ELEVATION=	470.	472.	474.	476.	480.

CREL	SPWID	COOW	EXPW	ELEVL	COOL	CAREA	EXPL
470.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

DAM DATA

IDAM	COOD	EXPD	DAMWID
1	3.1	1.5	75.

ELEVATIONS= 470. 472. 474. 476. 480.

CREL	SPWID	COQW	EXPW	ELEVL	COQL	CAREA	EXPL
470.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

DAM DATA

TOPEL	COQD	EXPD	DAMWID
476.0	3.1	1.5	365.

STATION 10, PLAN 1, RATIO 1

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	1.	1.	1.	1.	1.	1.	1.	1.	2.
2.	3.	3.	3.	4.	4.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	5.	5.	5.	5.
5.	5.	6.	7.	8.	10.	11.	13.	14.	15.
17.	18.	19.	21.	23.	23.	24.	26.	29.	35.
45.	62.	84.	109.	140.	178.	234.	645.	929.	1259.
1595.	1630.	1445.	1235.	1059.	924.	809.	692.	534.	395.
299.	242.	220.	215.	209.	203.	197.	191.	185.	180.
175.	171.	167.	164.	160.	156.	152.	148.	142.	136.

STORAGE

115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	116.	116.
116.	116.	116.	116.	117.	117.	117.	117.	117.	117.
117.	117.	117.	117.	117.	117.	117.	117.	117.	117.
117.	117.	117.	117.	117.	117.	117.	117.	117.	117.
117.	117.	117.	117.	117.	117.	117.	117.	117.	117.
117.	117.	117.	118.	119.	119.	120.	120.	121.	122.
122.	123.	123.	124.	125.	125.	126.	126.	127.	128.
131.	134.	139.	144.	150.	158.	172.	180.	182.	185.
187.	188.	186.	185.	184.	182.	181.	180.	179.	177.
176.	174.	173.	172.	170.	169.	167.	166.	164.	163.
161.	160.	158.	157.	156.	154.	153.	152.	151.	149.

STAGE

470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.1	470.1	470.1
470.1	470.1	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.3	470.3	470.4	470.4	470.5	470.6	470.6	470.7	470.8
470.8	470.9	471.0	471.0	471.1	471.2	471.2	471.3	471.3	471.5
471.8	472.2	472.6	473.2	473.8	474.7	475.8	476.5	476.7	476.9

477.1	477.1	477.0	476.9	476.8	476.7	476.6	476.5	476.4	476.3
476.2	476.1	476.0	475.8	475.7	475.6	475.4	475.3	475.1	475.0
474.6	474.7	474.6	474.5	474.3	474.2	474.1	474.0	473.8	473.7

PEAK OUTFLOW IS 1630. AT TIME 40.67 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1630.	796.	250.	121.	18118.
CMS	46.	23.	7.	3.	513.

477.1	477.1	477.0	476.9	476.8	476.7	476.6	476.5	476.4	476.3
476.2	476.1	476.0	475.9	475.7	475.6	475.4	475.3	475.1	475.0
474.6	474.7	474.6	474.5	474.3	474.2	474.1	474.0	473.8	473.7

PEAK OUTFLOW IS 1630. AT TIME 40.67 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1630.	796.	250.	121.	18113.
CMS	46.	23.	7.	3.	513.
INCHES		16.10	20.22	20.35	20.35
MM		408.97	513.53	516.89	516.89
AC-FT		395.	496.	499.	499.
THOUS CU M		487.	612.	615.	615.

STATION 10, PLAN 1, RATIO 2

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	1.	1.	1.	1.	1.	1.	1.	1.	1.
2.	2.	2.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	4.	4.
4.	4.	4.	5.	6.	7.	8.	9.	10.	12.
13.	14.	15.	16.	16.	17.	18.	19.	20.	23.
36.	40.	56.	75.	95.	118.	146.	178.	218.	268.
1178.	1214.	1044.	936.	903.	780.	614.	519.	411.	310.
242.	219.	212.	204.	195.	188.	180.	175.	170.	166.
161.	157.	152.	147.	140.	134.	128.	122.	117.	112.

STORAGE

115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	117.	117.	117.
117.	117.	117.	117.	118.	118.	119.	119.	120.	120.
120.	121.	121.	122.	122.	123.	123.	123.	124.	125.
127.	130.	133.	137.	141.	146.	151.	160.	173.	192.
195.	185.	184.	185.	181.	180.	180.	179.	177.	176.
174.	173.	171.	169.	167.	165.	163.	161.	159.	158.
156.	154.	153.	151.	150.	149.	148.	146.	145.	144.

STAGE

470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0

Sheet 40 of 85

470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.1
470.1	470.1	470.1	470.1	470.1	470.1	470.2	470.2	470.2	470.2
470.2	470.2	470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1
470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1
470.1	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.2	470.2	470.3	470.3	470.4	470.4	470.5	470.5	470.6
470.6	470.7	470.7	470.8	470.8	470.9	470.9	471.0	471.0	471.1
471.1	471.2	471.2	471.3	471.3	471.4	471.4	471.5	471.5	471.6

470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.1
470.1	470.1	470.1	470.1	470.1	470.2	470.2	470.2	470.2	470.2
470.2	470.2	470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1
470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1
470.1	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.2	470.2	470.3	470.3	470.4	470.4	470.5	470.5	470.6
470.6	470.7	470.7	470.8	470.8	470.9	470.9	471.0	471.0	471.1
471.4	471.7	472.1	472.4	472.9	473.3	473.9	474.7	475.9	476.7
476.9	476.9	476.8	476.7	476.6	476.6	476.5	476.4	476.3	476.2
476.1	475.9	475.8	475.6	475.4	475.2	475.0	474.8	474.7	474.5
474.4	474.2	474.1	473.9	473.8	473.7	473.5	473.4	473.3	473.2

PEAK OUTFLOW IS 1214. AT TIME 40.67 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1214.	563.	183.	99.	13249.
CMS	34.	16.	5.	3.	375.
INCHES		11.39	14.79	14.98	14.98
MM		289.16	375.64	378.06	378.06
AC-FT		279.	363.	365.	365.
THOUS CU M		344.	447.	450.	450.

STATION 10, PLAN 1, RATIO 3

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
1.	1.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	3.	3.	4.	4.	5.	6.	7.	8.	8.
9.	9.	10.	10.	11.	12.	12.	13.	14.	15.
16.	23.	34.	42.	54.	69.	84.	105.	124.	160.
211.	264.	291.	320.	344.	370.	447.	332.	289.	231.
197.	217.	198.	176.	179.	177.	167.	161.	156.	151.
142.	134.	126.	120.	113.	107.	102.	97.	92.	88.

STORAGE

115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	117.	117.	117.	117.	117.	117.	118.	118.	118.
119.	119.	119.	120.	120.	120.	120.	121.	121.	122.
123.	125.	127.	130.	133.	136.	139.	142.	147.	156.
170.	173.	181.	190.	179.	178.	177.	176.	175.	174.

Sept 41 & 26

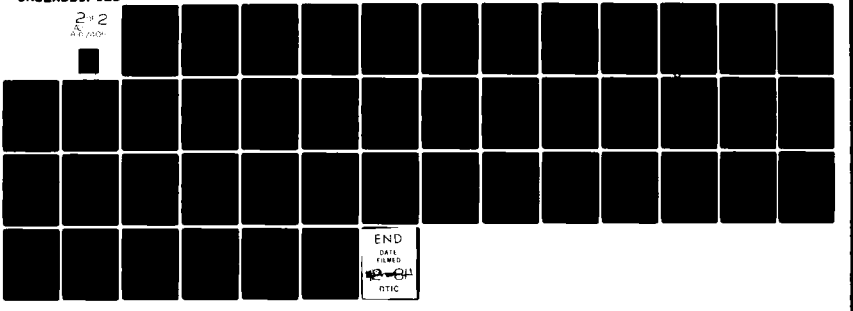
172.	170.	167.	165.	162.	160.	158.	156.	154.	152.
150.	149.	147.	146.	145.	144.	142.	141.	140.	140.

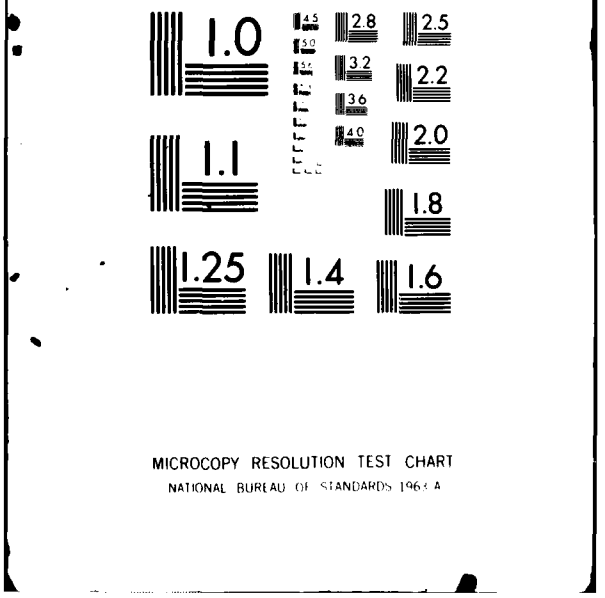
STAGE

470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	470.0	470.0

AD-A107 405 TIPPETTS-ABBETT-MCCARTHY-STRATTON NEW YORK F/G 13/13
NATIONAL DAM SAFETY PROGRAM. LAKE CASSE DAM (INVENTORY NUMBER N--ETC(U)
AUG 81 E O'BRIEN DACW51-81-C-0008

UNCLASSIFIED NL

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1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

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 [illegible] [illegible] [illegible] [illegible] [illegible]   177.    176.    175.    174.

     172.    170.    167.    165.    162.    160.    158.    156.    154.    152.
     150.    149.    147.    146.    145.    144.    142.    141.    140.    140.

                                         STAGE
    470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0
    470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0
    470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0
    470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0
    470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0   470.0
    470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1
    470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1
    470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1
    470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1   470.1
    470.1   470.1   470.1   470.2   470.2   470.2   470.3   470.3   470.3   470.4
    470.4   470.5   470.5   470.5   470.5   470.6   470.6   470.6   470.7   470.8
    470.9   471.1   471.4   471.7   472.0   472.3   472.6   473.0   473.5   474.3
    475.7   476.5   476.6   476.5   476.4   476.4   476.3   476.2   476.1   476.0
    475.9   475.6   475.4   475.2   475.0   474.8   474.6   474.4   474.2   474.0
    473.8   473.7   473.5   473.4   473.2   473.1   473.0   472.9   472.8   472.7

 PEAK OUTFLOW IS      761. AT TIME  41.00 HOURS

                                PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME
                        CFS     761.      337.      116.       56.          8404.
                        CMS      22.       10.        3.        2.           238.
                     INCHES               6.81      9.38      9.44           9.44
                         MM             173.06    238.15    239.83         239.83
                      AC-FT               167.      230.      232.           232.
                 THOUS CU M               206.      284.      286.           286.

                                  STATION     10, PLAN 1, RATIO 4

                                END-OF-PERIOD HYDROGRAPH ORDINATES

                                         OUTFLOW
       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
       1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
       1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
       1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
       1.      1.      1.      2.      2.      2.      3.      3.      3.      4.
       4.      5.      5.      5.      5.      6.      6.      6.      7.      8.
       9.     11.     14.     17.     21.     25.     32.     39.     49.     64.
      85.    104.    118.    130.    143.    153.    157.    159.    158.    155.
     152.    142.    135.    127.    121.    114.    108.    103.     97.     92.
      86.     83.     79.     75.     71.     68.     65.     61.     58.     56.

                                         STORAGE
     115.    115.    115.    115.    115.    115.    115.    115.    115.    115.
     115.    115.    115.    115.    115.    115.    115.    115.    115.    115.
     115.    115.    115.    115.    115.    115.    115.    115.    115.    115.
     115.    115.    115.    115.    115.    115.    115.    115.    115.    115.
     115.    115.    115.    115.    115.    115.    115.    115.    115.    115.

     115.    115.    115.    115.    115.    115.    115.    115.    115.    115.
     115.    115.    115.    115.    115.    115.    115.    115.    115.    115.
     115.    115.    115.    115.    115.    115.    115.    115.    115.    115.
     115.    115.    115.    115.    115.    115.    115.    116.    116.    116.
     116.    116.    116.    116.    116.    116.    116.    116.    117.    117.
     117.    117.    117.    117.    117.    118.    118.    118.    118.    118.
 [illegible] [illegible] 121. [illegible] 124. [illegible] 127. 129.  131.    135.
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Sheet 42 of 55

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                                                                             115.      115.      115.

           115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
           115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
           115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
           115.      115.      115.      115.      115.      115.      115.      116.      116.      116.
           116.      116.      116.      116.      116.      116.      116.      116.      117.      117.
           117.      117.      117.      117.      117.      118.      118.      118.      118.      118.
           119.      120.      121.      123.      124.      126.      127.      129.      131.      135.
           139.      143.      146.      148.      151.      153.      155.      155.      155.      154.
           152.      151.      149.      148.      146.      145.      144.      143.      141.      140.
           140.      139.      138.      137.      136.      136.      135.      134.      134.      133.

                                                   STAGE
          470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
          470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
          470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
          470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
          470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
          470.0     470.0     470.0     470.0     470.0     470.0     470.1     470.1     470.1     470.1
          470.1     470.1     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
          470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
          470.0     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1
          470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.2     470.2     470.2
          470.2     470.2     470.2     470.3     470.3     470.3     470.3     470.3     470.3     470.4
          470.5     470.6     470.7     470.9     471.0     471.2     471.4     471.6     471.9     472.2
          472.7     473.0     473.3     473.6     473.9     474.1     474.2     474.3     474.3     474.2
          474.0     473.8     473.7     473.5     473.4     473.3     473.1     473.0     472.9     472.8
          472.7     472.6     472.5     472.5     472.4     472.3     472.2     472.2     472.1     472.1

  PEAK OUTFLOW IS       159. AT TIME  42.67 HOURS


                                  PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
                        CFS       159.      132.        50.        24.          3633.
                        CMS         5.        4.         1.         1.           103.
                     INCHES                2.66       4.05       4.08           4.09
                         MM               67.59     102.84     103.63         103.68
                      AC-FT                 65.        99.       100.           100.
                 THOUS CU M                 80.       122.       123.           123.



          **********          **********          **********          **********          **********
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Sheet 43 of 85

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           PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                          FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
                                 AREA IN SQUARE MILES (SQUARE KILOMETERS)

                                                  RATIOS APPLIED TO FLOWS
```

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO FLOWS RATIO 1 1.00	RATIO 2 .75	RATIO 3 .50	RATIO 4 .25
HYDROGRAPH AT	1	.26	1	922.	692.	461.	231.
		(.67)	(	26.12)(	19.59)(	13.06)(	6.53)(
ROUTED TO	2	.26	1	923.	690.	456.	143.
		(.67)	(	26.13)(	19.53)(	12.91)(	4.06)(
ROUTED TO	3	.26	1	921.	691.	459.	144.
		(.67)	(	26.08)(	19.55)(	12.77)(	4.08)(
HYDROGRAPH AT	2	.09	1	363.	273.	182.	91.
		(.23)	(	10.29)(	7.72)(	5.15)(	2.57)(
2 COMBINED	2	.35	1	1224.	918.	601.	187.
		(.91)	(	34.66)(	25.99)(	17.02)(	5.30)(
HYDROGRAPH AT	3	.11	1	433.	324.	216.	108.
		(.28)	(	12.25)(	9.19)(	6.13)(	3.06)(
2 COMBINED	3	.46	1	1647.	1224.	806.	242.
		(1.19)	(	46.64)(	34.66)(	22.83)(	6.85)(
ROUTED TO	10	* .46	1	1630.	1214.	761.	159.
		(1.19)	(	46.15)(	34.38)(	21.55)(	4.50)(

Sheet 44 of 85

NORTH LAKE DAM
SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	572.00	572.00	573.75
STORAGE	210.	210.	249.
OUTFLOW	0.	0.	23.

North Lake Dam

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	572.00	572.00	573.75
STORAGE	210.	210.	249.
OUTFLOW	0.	0.	70.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	574.37	.62	263.	923.	8.67	40.67	0.00
.75	574.25	.50	260.	690.	6.33	40.67	0.00
.50	574.11	.36	257.	456.	4.67	40.67	0.00
.25	573.86	.11	251.	143.	2.33	41.67	0.00

PLAN 1 STATION 3

RATIO	MAXIMUM FLOW,CFS	MAXIMUM STAGE,FT	TIME HOURS
1.00	921.	478.7	40.67
.75	691.	478.3	40.67
.50	450.	477.8	40.67
.25	144.	477.0	41.67

Sheet 45 of 85

Long Pond Dam w/o Auxiliary Spillway

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	470.00	470.00	476.00
STORAGE	115.	115.	174.
OUTFLOW	0.	0.	272.

Long Pond Dam w/o Auxillary Spillway

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	470.00	470.00	476.00
STORAGE	115.	115.	174.
OUTFLOW	0.	0.	222.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	477.14	1.14	188.	1630.	5.00	40.67	0.00
.75	476.90	.90	185.	1214.	4.00	40.67	0.00
.50	476.60	.60	181.	761.	3.00	41.00	0.00
.25	474.30	0.00	155.	159.	0.00	42.67	0.00

Sheet 46 of 85

WITH HIGHWAY EMBANKMENT AS SECONDARY SPILLWAY

CASE II

```
**********
FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION  JULY 1978
 LAST MODIFICATION  01 APR 80
**********
    1     A1                    LONG POND DAM NO 3
    2     A2                    PHASE 1 SAFETY INSPECTION
    3     A3                    HEC 1 DB PMF ANALYSIS
    4     B    .150     0      20       0       0       0       0       0       0       0
    5     B1     5
    6     J      1      4       1
    7     J1     1    0.75     0.5     0.25
    8     K      0      1                                               1
    9     K1       1 NORTH LAKE BASIN RUN-OFF
   10     K      1      1     0.26              0.46                                    1
   11     P             22     112     123     133     141
   12     T                                                       1     0.1             .13
   13     W    0.98   0.625
   14     X      -1    -0.1     1.5
   15     K      1      2                                               1
   16     K1       2 ROUTE HYDROGRAPH THROUGH NORTH LAKE
   17     Y                             1       1
   18     Y1     1                                               210     -1
   19     Y4   572     573   573.75     575
   20     Y5     0    20.9    70.4   189.3
   21     $S     1     210   254.5   277.8   326.4   404.5
   22     *E   541     572     574     575     577     580
   23     OS   572
   24     ED573.75     2.7     1.5     600
   25     K      1      3                                               1
   26     K1       3 CHANNEL ROUTE TO STATION 7+00
   27     Y                             1       1
   28     Y1     1
   29     Y6 0.035   0.035   0.035     476     500     700   0.086
   30     Y7     0     500      30     490      60     480      72     476      80     476
   31     Y7   100     480     120     490     170     500
   32     K      0      2                                               1
   33     K1       2 SUB-AREA 1 RUN-OFF
   34     Y      1      1    0.09              0.46                                    1
   35     P             22     112     123     133     141
   36     T                                                       1     0.1            0.07
   37     W    0.73   0.625
   38     X      -1    -0.1     1.5
   39     K      2      2                                               1
   40     K1       2 COMBINE ROUTED HYDROGRAPH WITH SUB AREA 2 INFLOW
   41     K      0      3                                               1
   42     K1       3 SUB-AREA 3 RUNOFF
   43     Y      1      1    0.11              0.46                                    1
   44     P             22     112     123     133     141
   45     T                                                       1     0.1            0.06
   46     W    0.77   0.625
   47     X      -1    -0.1     1.5
   48     K      2      3                                               1
   49     K1       3 COMBINE SUBAREA 3 WITH COMBINED HYDROGRAPH
   50     K      1     10                                               1
```

Sheet 47 of 85

```
   21     K1      10 ROUTE THROUGH LONG POND(INCLUDING FLOW OVER DEPRESSIONS)
   22     Y                             1       1
```

```
47              KT      5 COMBINE SUBAREA 5 WITH COMBINED HYDROGRAPH
48              K   1       10                                          1
49
50
51
52
53
54
55
56
57
58
59
60
51              K1      10 ROUTE THROUGH LONG POND(INCLUDING FLOW OVER DEPRESSION)
52              Y                                       1       1
53              Y1  1                                                       115     -1
54              Y4  470     471.2       472     474     475     475.5       476     478
55              Y5  0       24          53      150     180     378         891     6433
56              S5  115     132.5       152.1   173.6   222.8
57              SE  470     472         474     476     480
58              SS  470
59              SD  476     3.09        1.5     365
60              K   99
```

Sheet 48 of 55

PREVIEW OF SEQUENCE OF STREAM NETWORK CALCULATIONS

RUNOFF HYDROGRAPH AT

PREVIEW OF SEQUENCE OF STREAM NETWORK CALCULATIONS

RUNOFF HYDROGRAPH AT	1
ROUTE HYDROGRAPH TO	2
ROUTE HYDROGRAPH TO	3
RUNOFF HYDROGRAPH AT	2
COMBINE 2 HYDROGRAPHS AT	2
RUNOFF HYDROGRAPH AT	3
COMBINE 2 HYDROGRAPHS AT	3
ROUTE HYDROGRAPH TO	10
END OF NETWORK	

Sheet 49 of 85

****
FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION JULY 1978
LAST MODIFICATION 01 APR 80
****

RUN DATE= 81/06/29.
TIME= 12.49.20.

LONG POND DAM NO 3
PHASE 1 SAFETY INSPECTION
HEC 1 DB PMF ANALYSIS

JOB SPECIFICATION

NQ	NHR	NMIN	IDAY	IHR	IMIN	METRC	IPLT	IPRT	NSTAN
150	0	20	0	0	0	0	0	0	0

JOPER	NWT	LROPT	TRACE
5	0	0	0

MULTI-PLAN ANALYSES TO BE PERFORMED
NPLAN= 1 NRTIO= 4 LRTIO= 1
RTIOS= 1.00 .75 .50 .25

********** ********** ********** ********** **********

SUB-AREA RUNOFF COMPUTATION

1 NORTH LAKE BASIN RUN-OFF

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
1	0	0	0	0	0	1	0	0

HYDROGRAPH DATA

IHYDG	IUHG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	.26	0.00	.46	0.00	0.000	0	1	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.00	22.00	112.00	123.00	133.00	141.00	0.00	0.00

TRSPC COMPUTED BY THE PROGRAM IS .800

LOSS DATA

LROPT	STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0	0.00	0.00	1.00	0.00	0.00	1.00	1.00	.10	0.00	.13

UNIT HYDROGRAPH DATA
TP= .98 CP= .63 NTA= 0

RECESSION DATA
STRTQ= -1.00 QRCSN= -.10 RTIOR= 1.50
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 3.63 AND R= 2.36 INTERVALS

UNIT HYDROGRAPH 15 END-OF-PERIOD ORDINATES, LAG= .97 HOURS, CP= .62 VOL= 1.00

18.	62.	101.	103.	74.	50.	32.	21.	14.	9.
6.	4.	2.	2.	1.					

Sheet 50 of 85

END-OF-PERIOD FLOW

MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q	MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q

RECESSION DATA

ST -1 QR - RT 1.50

AND [illegible] TC= 3.03 AND R= 2.36 INTERVALS

UNIT HYDROGRAPH 15 END-OF-PERIOD ORDINATES, LAG= .97 HOURS, CP= .62 VOL= 1.00

18. 62. 101. 103. 76. 50. 32. 21. 14. 9.
6. 4. 2. 2. 1.

MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q	MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q
END-OF-PERIOD FLOW													
1.01	.20	1	.00	.00	.00	0.	1.02	1.20	76	.04	.01	.03	3.
1.01	.40	2	.00	.00	.00	0.	1.02	1.40	77	.04	.01	.03	4.
1.01	1.00	3	.00	.00	.00	0.	1.02	2.00	78	.04	.01	.03	4.
1.01	1.20	4	.00	.00	.00	0.	1.02	2.20	79	.04	.01	.03	5.
1.01	1.40	5	.00	.00	.00	0.	1.02	2.40	80	.04	.01	.03	5.
1.01	2.00	6	.00	.00	.00	0.	1.02	3.00	81	.04	.01	.03	5.
1.01	2.20	7	.00	.00	.00	0.	1.02	3.20	82	.04	.01	.03	5.
1.01	2.40	8	.00	.00	.00	0.	1.02	3.40	83	.04	.01	.03	5.
1.01	3.00	9	.00	.00	.00	0.	1.02	4.00	84	.04	.01	.03	5.
1.01	3.20	10	.00	.00	.00	0.	1.02	4.20	85	.04	.01	.03	5.
1.01	3.40	11	.00	.00	.00	0.	1.02	4.40	86	.04	.01	.03	5.
1.01	4.00	12	.00	.00	.00	0.	1.02	5.00	87	.04	.01	.03	5.
1.01	4.20	13	.00	.00	.00	0.	1.02	5.20	88	.04	.01	.03	5.
1.01	4.40	14	.00	.00	.00	0.	1.02	5.40	89	.04	.01	.03	5.
1.01	5.00	15	.00	.00	.00	0.	1.02	6.00	90	.04	.01	.03	5.
1.01	5.20	16	.00	.00	.00	0.	1.02	6.20	91	.11	.08	.03	6.
1.01	5.40	17	.00	.00	.00	0.	1.02	6.40	92	.11	.08	.03	11.
1.01	6.00	18	.00	.00	.00	0.	1.02	7.00	93	.11	.08	.03	18.
1.01	6.20	19	.01	.00	.01	0.	1.02	7.20	94	.11	.08	.03	25.
1.01	6.40	20	.01	.00	.01	0.	1.02	7.40	95	.11	.08	.03	30.
1.01	7.00	21	.01	.00	.01	0.	1.02	8.00	96	.11	.08	.03	33.
1.01	7.20	22	.01	.00	.01	0.	1.02	8.20	97	.11	.08	.03	35.
1.01	7.40	23	.01	.00	.01	0.	1.02	8.40	98	.11	.08	.03	37.
1.01	8.00	24	.01	.00	.01	0.	1.02	9.00	99	.11	.08	.03	38.
1.01	8.20	25	.01	.00	.01	0.	1.02	9.20	100	.11	.08	.03	38.
1.01	8.40	26	.01	.00	.01	0.	1.02	9.40	101	.11	.08	.03	39.
1.01	9.00	27	.01	.00	.01	0.	1.02	10.00	102	.11	.08	.03	39.
1.01	9.20	28	.01	.00	.01	0.	1.02	10.20	103	.11	.08	.03	39.
1.01	9.40	29	.01	.00	.01	0.	1.02	10.40	104	.11	.08	.03	39.
1.01	10.00	30	.01	.00	.01	0.	1.02	11.00	105	.11	.09	.03	39.
1.01	10.20	31	.01	.00	.01	0.	1.02	11.20	106	.11	.08	.03	39.
1.01	10.40	32	.01	.00	.01	0.	1.02	11.40	107	.11	.08	.03	39.
1.01	11.00	33	.01	.00	.01	0.	1.02	12.00	108	.11	.08	.03	39.
1.01	11.20	34	.01	.00	.01	0.	1.02	12.20	109	.66	.63	.03	49.
1.01	11.40	35	.01	.00	.01	0.	1.02	12.40	110	.66	.63	.03	83.
1.01	12.00	36	.01	.00	.01	0.	1.02	13.00	111	.66	.63	.03	139.
1.01	12.20	37	.04	.01	.03	1.	1.02	13.20	112	.79	.76	.03	198.
1.01	12.40	38	.04	.01	.03	1.	1.02	13.40	113	.79	.76	.03	248.
1.01	13.00	39	.04	.01	.03	1.	1.02	14.00	114	.79	.76	.03	289.
1.01	13.20	40	.05	.01	.04	2.	1.02	14.20	115	.99	.96	.03	324.
1.01	13.40	41	.05	.01	.04	2.	1.02	14.40	116	.99	.96	.03	359.
1.01	14.00	42	.05	.01	.04	2.	1.02	15.00	117	.99	.96	.03	392.
1.01	14.20	43	.06	.01	.05	3.	1.02	15.20	118	1.72	1.69	.03	434.
1.01	14.40	44	.06	.01	.05	3.	1.02	15.40	119	4.72	4.69	.03	555.
1.01	15.00	45	.06	.01	.05	3.	1.02	16.00	120	1.05	1.02	.03	764.
1.01	15.20	46	.10	.01	.09	4.	1.02	16.20	121	.92	.89	.03	922.
1.01	15.40	47	.28	.04	.25	4.	1.02	16.40	122	.92	.89	.03	914.
1.01	16.00	48	.04	.03	.04	6.	1.02	17.00	123	.92	.89	.03	790.
1.01	16.20	49	.06	.03	.03	9.	1.02	17.20	124	.72	.69	.03	668.
1.01	16.40	50	.06	.03	.03	11.	1.02	17.40	125	.72	.69	.03	577.
1.01	17.00	51	.06	.03	.03	12.	1.02	18.00	126	.72	.69	.03	506.
1.01	17.20	52	.04	.01	.03	12.	1.02	18.20	127	.06	.03	.03	440.
1.01	17.40	53	.04	.01	.03	12.	1.02	18.40	128	.06	.03	.03	362.
1.01	18.00	54	.04	.01	.03	11.	1.02	19.00	129	.06	.03	.03	271.
1.01	19.20	55	.00	.00	.00	9.	1.02	19.20	130	.06	.03	.03	187.
1.01	19.40	56	.00	.00	.00	8.	1.02	19.40	131	.06	.03	.03	126.

Sheet 51 of 85

1.01	20.00	57	.00	.00	.00	6.	1.02	20.00	132	.06	.03	.03	92.
1.01	20.20	58	.00	.00	.00	6.	1.02	20.20	133	.06	.03	.03	88.

1.01	17.00	51	.06	.03	.03	12.	1.02	18.00	126	.72	.69	.03	577.
1.01	17.20	52	.04	.01	.03	11.	1.02	18.20	127	.06	.03	.03	506.
1.01	17.40	53	.04	.01	.03	11.	1.02	18.40	128	.06	.03	.03	362.
1.01	18.00	54	.04	.01	.03	11.	1.02	19.00	129	.06	.03	.03	271.
1.01	18.20	55	.00	.00	.00	9.	1.02	19.20	130	.06	.03	.03	187.
1.01	18.40	56	.00	.00	.00	8.	1.02	19.40	131	.06	.03	.03	126.
1.01	19.00	57	.00	.00	.00	6.	1.02	20.00	132	.06	.03	.03	92.
1.01	19.20	58	.00	.00	.00	4.	1.02	20.20	133	.06	.03	.03	88.
1.01	19.40	59	.00	.00	.00	3.	1.02	20.40	134	.06	.03	.03	85.
1.01	20.00	60	.00	.00	.00	2.	1.02	21.00	135	.06	.03	.03	81.
1.01	20.20	61	.00	.00	.00	1.	1.02	21.20	136	.06	.03	.03	78.
1.01	20.40	62	.00	.00	.00	1.	1.02	21.40	137	.06	.03	.03	75.
1.01	21.00	63	.00	.00	.00	1.	1.02	22.00	138	.06	.03	.03	72.
1.01	21.20	64	.00	.00	.00	1.	1.02	22.20	139	.06	.03	.03	69.
1.01	21.40	65	.00	.00	.00	1.	1.02	22.40	140	.06	.03	.03	66.
1.01	22.00	66	.00	.00	.00	1.	1.02	23.00	141	.06	.03	.03	64.
1.01	22.20	67	.00	.00	.00	1.	1.02	23.20	142	.06	.03	.03	61.
1.01	22.40	68	.00	.00	.00	1.	1.02	23.40	143	.06	.03	.03	59.
1.01	23.00	69	.00	.00	.00	1.	1.03	0.00	144	.06	.03	.03	56.
1.01	23.20	70	.00	.00	.00	1.	1.03	.20	145	0.00	0.00	0.00	54.
1.01	23.40	71	.00	.00	.00	1.	1.03	.40	146	0.00	0.00	0.00	52.
1.02	0.00	72	.00	.00	.00	1.	1.03	1.00	147	0.00	0.00	0.00	50.
1.02	.20	73	.04	.01	.03	1.	1.03	1.20	148	0.00	0.00	0.00	48.
1.02	.40	74	.04	.01	.03	1.	1.03	1.40	149	0.00	0.00	0.00	46.
1.02	1.00	75	.04	.01	.03	2.	1.03	2.00	150	0.00	0.00	0.00	44.
									SUM	24.82	21.61	3.21	11637.
										(630.)(549.)(82.)(329.52)			

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	922.	500.	159.	78.	11630.
CMS	26.	14.	5.	2.	329.
INCHES		17.90	22.78	23.12	23.12
MM		454.78	578.69	587.15	587.15
AC-FT		248.	316.	320.	320.
THOUS CU M		306.	389.	395.	395.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 1

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	1.	1.	1.	2.
2.	2.	3.	3.	3.	4.	4.	6.	9.	11.
12.	12.	12.	11.	9.	8.	6.	4.	3.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	2.	3.	4.	4.	5.	5.
5.	5.	5.	5.	5.	5.	5.	5.	5.	5.
6.	11.	18.	25.	30.	33.	35.	37.	38.	38.
39.	39.	39.	39.	39.	39.	39.	39.	49.	83.
139.	199.	249.	289.	324.	358.	392.	434.	555.	764.
922.	914.	790.	668.	577.	506.	440.	362.	271.	187.
126.	92.	88.	85.	81.	78.	75.	72.	69.	66.
64.	61.	59.	56.	54.	52.	50.	48.	46.	44.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	922.	500.	159.	78.	11630.
CMS	26.	14.	5.	2.	329.
INCHES		17.90	22.78	23.12	23.12
MM		454.78	578.69	587.15	587.15
AC-FT		248.	316.	320.	320.
THOUS CU M		306.	389.	395.	395.

Sheet 52 of 85

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 2

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

INCHES	17.90	22.78	23.12	23.12	
MM	.78	3.69	37.1[illegible]	5	
AC-FT	448.	316.	320.	320.	
THOUS CU M	306.	389.	395.	395.	

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 2

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
2.	2.	2.	2.	2.	3.	3.	5.	7.	8.
9.	9.	9.	8.	7.	6.	4.	3.	2.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	2.	3.	3.	3.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
5.	8.	13.	18.	22.	25.	27.	28.	28.	29.
29.	29.	29.	29.	30.	30.	30.	30.	37.	63.
104.	149.	196.	217.	243.	269.	294.	326.	416.	573.
692.	685.	592.	501.	433.	380.	330.	272.	203.	140.
95.	69.	66.	63.	61.	59.	56.	54.	52.	50.
48.	46.	44.	42.	41.	39.	37.	36.	35.	33.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	692.	375.	119.	58.	8722.
CMS	20.	11.	3.	2.	247.
INCHES		13.43	17.09	17.34	17.34
MM		341.09	434.02	440.36	440.36
AC-FT		186.	237.	240.	240.
THOUS CU M		230.	292.	296.	296.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 3

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
1.	1.	1.	1.	2.	2.	2.	3.	4.	5.
6.	6.	6.	5.	5.	4.	3.	2.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	2.	2.	2.	2.
2.	2.	2.	3.	3.	3.	3.	3.	3.	3.
3.	5.	9.	12.	15.	17.	18.	18.	19.	19.
19.	20.	20.	20.	20.	20.	20.	20.	25.	42.
70.	99.	124.	145.	162.	176.	186.	217.	278.	392.
461.	457.	395.	334.	288.	253.	220.	181.	136.	93.
63.	46	44.	42.	41.	39.	37.	36.	35.	33.
32.	31.	29.	28.	27.	26.	25.	24.	23.	22.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	461.	250.	80.	39.	5815.
CMS	13.	7.	2.	1.	165.
INCHES		8.95	11.39	11.56	11.56
MM		227.39	289.34	293.58	293.58
AC-FT		124.	158.	160.	160.
THOUS CU M		153.	195.	198.	198.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	1.	1.	1.	1.	1.	2.	2.	3.

Sheet 5 of 25

3.	3.	3.	3.	2.	2.	1.	1.	1	0

HYDROGRAPH AT STA 1 FOR PLAN 1, RATIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	1.	1.	1.	1.	1.	2.	2.	3.
3.	3.	3.	3.	2.	2.	1.	1.	1.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
2.	3.	4.	6.	7.	8.	9.	9.	9.	10.
10.	10.	10.	10.	10.	10.	10.	10.	12.	21.
35.	50.	62.	72.	81.	89.	98.	109.	139.	191.
231.	228.	197.	167.	144.	127.	110.	91.	68.	47.
32.	28.	22.	21.	20.	19.	19.	18.	17.	17.
16.	15.	15.	14.	14.	13.	12.	12.	12.	11.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	231.	125.	40.	19.	2907.
CMS	7.	4.	1.	1.	82.
INCHES		4.48	5.70	5.78	5.78
MM		113.70	144.67	146.79	146.79
AC-FT		62.	79.	80.	80.
THOUS CU M		77.	97.	99.	99.

********** ********** ********** ********** **********

HYDROGRAPH ROUTING

2 ROUTE HYDROGRAPH THROUGH NORTH LAKE

ISTAO	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
2	1	0	0	0	0	1	0	0

ROUTING DATA

GLOSS	CLOSS	AVG	IRES	ISAME	IOPT	IPMP	LSTR
0.0	0.000	0.00	1	1	0	0	0

NSTPS	NSTOL	LAG	AMSKK	X	TSK	STORA	ISPRAT
1	0	0	0.000	0.000	0.000	210.	-1

STAGE	572.00	573.00	573.75	575.00
FLOW	0.00	20.90	70.40	189.30
CAPACITY=	1.	210.	255.	278.	326.	405.
ELEVATION=	541.	572.	574.	575.	577.	580.

CREL	SPWID	COQW	EXPW	ELEVL	COOL	CAREA	EXPL
572.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

DAM DATA

TOPEL	COQD	EXPD	DAMWID
573.8	2.7	1.5	600.

STATION 2, PLAN 1, RATIO 1

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

STATION 2, PLAN 1, RATIO 1

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	1.	1.	1.	1.
2.	2.	2.	2.	2.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	4.	5.	5.	6.	7.	8.	8.
9.	10.	11.	11.	12.	13.	13.	14.	15.	16.
19.	26.	41.	59.	124.	249.	367.	410.	491.	660.
852.	923.	846.	722.	619.	541.	475.	405.	324.	241.
172.	126.	103.	93.	87.	83.	80.	77.	74.	72.
70.	70.	69.	68.	67.	66.	65.	64.	62.	61.

STORAGE

210.	210.	210.	210.	210.	210.	210.	210.	210.	210.
210.	210.	210.	210.	210.	210.	210.	210.	210.	210.
210.	210.	210.	210.	210.	210.	210.	210.	210.	210.
210.	210.	210.	210.	210.	210.	210.	210.	210.	210.
210.	210.	211.	211.	211.	211.	211.	211.	211.	211.
212.	212.	212.	212.	213.	213.	213.	213.	213.	213.
213.	213.	213.	213.	213.	213.	213.	213.	213.	213.
213.	213.	212.	212.	212.	212.	212.	212.	213.	213.
213.	213.	213.	213.	213.	213.	213.	213.	213.	213.
213.	213.	214.	214.	215.	216.	216.	217.	218.	219.
220.	220.	221.	222.	223.	224.	224.	225.	226.	227.
230.	234.	239.	245.	251.	255.	256.	256.	258.	260.
262.	263.	262.	261.	259.	258.	257.	256.	255.	254.
252.	251.	250.	250.	250.	250.	250.	249.	249.	249.
249.	249.	248.	249.	248.	247.	247.	247.	246.	246.

STAGE

572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.1
572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1
572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1
572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1
572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1
572.1	572.2	572.2	572.2	572.2	572.2	572.3	572.3	572.4	572.4
572.4	572.5	572.5	572.5	572.6	572.6	572.6	572.7	572.7	572.8
572.9	573.1	573.3	573.6	573.8	574.0	574.1	574.1	574.1	574.2
574.3	574.4	574.5	574.3	574.2	574.2	574.1	574.1	574.0	574.0
573.9	573.8	573.8	573.8	573.8	573.8	573.8	573.8	573.8	573.8
573.7	573.7	573.7	573.7	573.7	573.7	573.7	573.6	573.6	573.6

PEAK OUTFLOW IS 923. AT TIME 40.67 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	923.	477.	142.	69.	10330.
CMS	26.	14.	4.	2.	293.
INCHES		17.07	20.38	20.53	20.53
MM		433.48	517.56	521.54	521.54
AC-FT		237.	283.	285.	285.
THOUS CU M		292.	349.	351.	351.

Sheet 55 & 55

STATION 2, PLAN 1, RATIO 2

```
                  INCHES            17.07     20.38     20.53         20.53
                      MM           433.48    517.56    521.54        521.54
                       .               7.       82.      285.             .
            THOUS CU M               292.      348.      351.          351.


                               STATION       2, PLAN 1, RATIO 2

                           END-OF-PERIOD HYDROGRAPH ORDINATES

                                          OUTFLOW
           0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
           0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
           0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
           0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
           0.        0.        0.        0.        0.        0.        1.        1.        1.        1.
           1.        1.        2.        2.        2.        2.        2.        2.        2.        2.
           2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
           2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
           2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
           2.        2.        3.        3.        3.        4.        4.        5.        6.        6.
           7.        7.        8.        8.        9.       10.       10.       11.       11.       12.
          14.       17.       21.       34.       50.       66.      165.      285.      362.      437.
         632.      690.      638.      546.      468.      409.      359.      307.      246.      185.
         134.      100.       82.       74.       71.       70.       69.       68.       66.       65.
          64.       63.       61.       60.       58.       57.       55.       54.       52.       51.

                                          STORAGE
         210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
         210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
         210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
         210.      210.      210.      210.      210.      210.      210.      210.      210.      210.
         210.      210.      210.      210.      210.      211.      211.      211.      211.      211.
         211.      211.      212.      212.      212.      212.      212.      212.      212.      212.
         212.      212.      212.      212.      212.      212.      212.      212.      212.      212.
         212.      212.      212.      212.      212.      212.      212.      212.      212.      212.
         212.      212.      212.      212.      212.      212.      212.      212.      212.      212.
         212.      213.      213.      213.      214.      214.      215.      215.      216.      217.
         217.      218.      218.      219.      220.      220.      221.      221.      222.      223.
         225.      226.      232.      237.      242.      247.      252.      254.      256.      258.
         260.      260.      260.      258.      257.      256.      256.      255.      254.      252.
         251.      250.      250.      249.      249.      249.      248.      248.      248.      247.
         247.      246.      246.      245.      245.      244.      244.      243.      243.      242.

                                           STAGE
        572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
        572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
        572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
        572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
        572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0     572.0
        572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1
        572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1
        572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1
        572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1     572.1
        572.1     572.1     572.1     572.1     572.2     572.2     572.2     572.2     572.3     572.3
        572.3     572.4     572.4     572.4     572.4     572.5     572.5     572.5     572.5     572.6
        572.7     572.8     573.0     573.2     573.4     573.7     573.9     574.0     574.0     574.1
        574.2     574.2     574.2     574.2     574.1     574.1     574.0     574.0     574.0     573.9
        573.9     573.8     573.8     573.8     573.8     573.7     573.7     573.7     573.7     573.7
        573.7     573.6     573.6     573.6     573.6     573.5     573.5     573.5     573.5     573.5

  PEAK OUTFLOW IS       690. AT TIME  40.67 HOURS

                               PEAK    6-HOUR    24-HOUR    72-HOUR    TOTAL VOLUME

                   CFS          690.      342.      104.       50.          7544.
                   CMS           20.       10.        3.        1.           214.
                INCHES                   12.25     14.88     15.00          15.00
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Sheet 56 of 85

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        573.7    573.6    573.6    573.6    573.6    573.5    573.5    573.5    573.5    573.5

  K OL    IS      690.     IME      7 HO

                                        PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME

                               CFS       690.      342.      104.       50.        7544.
                               CMS        20.       10.        3.        1.         214.
                            INCHES                 12.25     14.88     15.00        15.00
                                MM                311.21    377.89    380.87       380.87
                             AC-FT                  170.      206.      208.         208.
                         THOUS CU M                 209.      254.      256.         256.

                                             STATION       2, PLAN 1, RATIO 3

                                        END-OF-PERIOD HYDROGRAPH ORDINATES

                                                     OUTFLOW
           0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
           0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
           0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
           0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
           0.       0.       0.       0.       0.       0.       0.       0.       1.       1.
           1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
           1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
           1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
           1.       1.       1.       1.       1.       1.       1.       1.       1.       2.
           2.       2.       2.       2.       2.       3.       3.       3.       4.       4.
           5.       5.       5.       6.       6.       6.       7.       7.       7.       8.
           9.      11.      14.      17.      20.      31.      43.      56.      72.     253.
         404.     456.     429.     369.     317.     276.     242.     208.     169.     129.
          96.      75.      69.      67.      65.      63.      61.      59.      57.      56.
          54.      52.      50.      49.      47.      45.      44.      42.      41.      39.

                                                     STORAGE
         210.     210.     210.     210.     210.     210.     210.     210.     210.     210.
         210.     210.     210.     210.     210.     210.     210.     210.     210.     210.
         210.     210.     210.     210.     210.     210.     210.     210.     210.     210.
         210.     210.     210.     210.     210.     210.     210.     210.     210.     210.
         210.     210.     210.     210.     210.     210.     210.     210.     211.     211.
         211.     211.     211.     211.     211.     211.     211.     211.     211.     211.
         211.     211.     211.     211.     211.     211.     211.     211.     211.     211.
         211.     211.     211.     211.     211.     211.     211.     211.     211.     211.
         211.     211.     211.     211.     211.     211.     212.     212.     212.     212.
         212.     212.     212.     212.     212.     213.     213.     214.     214.     214.
         215.     215.     216.     216.     216.     217.     217.     217.     218.     219.
         220.     222.     225.     228.     232.     236.     240.     244.     249.     254.
         256.     257.     257.     256.     255.     254.     254.     253.     252.     251.
         250.     249.     249.     248.     247.     247.     246.     245.     245.     244.
         243.     243.     242.     242.     241.     241.     240.     239.     239.     238.

                                                      STAGE
        572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
        572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
        572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
        572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
        572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
        572.0    572.0    572.0    572.1    572.1    572.1    572.1    572.1    572.1    572.1
        572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1
        572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1
        572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.1
        572.1    572.1    572.1    572.1    572.1    572.1    572.1    572.2    572.2    572.2
        572.2    572.2    572.3    572.3    572.3    572.3    572.3    572.3    572.4    572.4
        572.4    572.5    572.7    572.8    573.0    573.2    573.3    573.5    573.8    574.0

        574.1    574.1    574.1    574.1    574.0    574.0    574.0    573.9    573.9    573.8
        573.8    573.8    573.7    573.7    573.7    573.6    573.6    573.6    573.6    573.5
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Sheet 57 of 85

572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.1
572.1	572.	572	57	5			1	.1	2.1
572.1	572.	572.	57	5	572.1	572.1	572.1	572.1	572.1
572.1	572.1	572.1	572.1	572.1	572.1	572.1	572.2	572.2	572.2
572.2	572.2	572.3	572.3	572.3	572.3	572.3	572.3	572.4	572.4
572.4	572.5	572.7	572.8	573.0	573.2	573.3	573.5	573.8	574.0
574.1	574.1	574.1	574.1	574.0	574.0	574.0	573.9	573.9	573.8
573.8	573.8	573.7	573.7	573.7	573.6	573.6	573.6	573.6	573.5
573.5	573.5	573.4	573.4	573.4	573.4	573.3	573.3	573.3	573.3

PEAK OUTFLOW IS 456. AT TIME 40.67 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	456.	209.	66.	32.	4781.
CMS	13.	6.	2.	1.	135.
INCHES		7.46	9.43	9.50	9.50
MM		189.57	239.40	241.39	241.39
AC-FT		103.	131.	132.	132.
THOUS CU M		128.	161.	162.	162.

STATION 2, PLAN 1, RATIO 4

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	2.	2.	2.
2.	2.	3.	3.	3.	3.	3.	4.	4.	4.
5.	6.	7.	8.	10.	12.	14.	16.	19.	27.
41.	56.	65.	116.	143.	139.	124.	109.	91.	75.
69.	65.	62.	59.	56.	53.	50.	48.	46.	43.
41.	39.	37.	36.	34.	32.	31.	29.	28.	27.

STORAGE

210.	210.	210.	210.	210.	210.	210.	210.	210.	210.
210.	210.	210.	210.	210.	210.	210.	210.	210.	210.
210.	210.	210.	210.	210.	210.	210.	210.	210.	210.
210.	210.	210.	210.	210.	210.	210.	210.	210.	210.
210.	210.	210.	210.	210.	210.	210.	210.	210.	210.
210.	210.	211.	211.	211.	211.	211.	211.	211.	211.
211.	211.	211.	211.	211.	211.	211.	211.	211.	211.
211.	211.	211.	211.	211.	211.	211.	211.	211.	211.
211.	211.	211.	211.	211.	211.	211.	211.	211.	211.
211.	211.	211.	211.	211.	211.	212.	212.	212.	212.
212.	213.	213.	217.	213.	213.	214.	214.	214.	214.
215.	216.	217.	219.	221.	223.	225.	228.	230.	234.
239.	244.	248.	251.	251.	251.	251.	251.	250.	249.
245.	247.	246.	245.	244.	243.	242.	241.	241.	240.
239.	238.	238.	237.	237.	236.	236.	235.	235.	234.

STAGE

572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0
572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0

almost DE at 225

572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0	572.0
572.0	572.0	572.1	572.0	572.0	572.0	572.0	572.0	572.0	572.0
572.0	572.1	572.1	572.0	572.0	572.0	572.0	572.0	572.0	572.0

```
                                        [illegible]  [illegible]  [illegible]  [illegible]   235.     235.     234.
                                                 STAGE
          572      57       5     [illegible] [illegible] [illegible] [illegible] 572.0   572.0    572.0
          572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
          572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
          572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0

          572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
          572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
          572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
          572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
          572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0    572.0
          572.0    572.0    572.0    572.0    572.1    572.1    572.1    572.1    572.1    572.1
          572.1    572.1    572.1    572.1    572.1    572.2    572.2    572.2    572.2    572.2
          572.2    572.3    572.3    572.4    572.5    572.6    572.7    572.8    572.9    573.1
          573.3    573.5    573.7    573.8    573.9    573.9    573.8    573.8    573.8    573.8
          573.7    573.7    573.6    573.6    573.5    573.5    573.4    573.4    573.4    573.3
          573.3    573.3    573.2    573.2    573.2    573.2    573.1    573.1    573.1    573.1

 PEAK OUTFLOW IS       143. AT TIME  41.67 HOURS

                                    PEAK    6-HOUR   24-HOUR   72-HOUR    TOTAL VOLUME
                            CFS     143.       79.       28.       14.         2030.
                            CMS       4.        2.        1.        0.           57.
                         INCHES               2.84      4.00      4.04          4.04
                             MM              72.02    101.51    102.51        102.51
                          AC-FT                39.       55.       56.           56.
                      THOUS CU M               48.       68.       69.           69.


          **********          **********          **********          **********          **********

                                           HYDROGRAPH ROUTING

                   5 CHANNEL ROUTE TO STATION 7+00

                          ISTAQ   ICOMP   IECON   ITAPE    JPLT    JPPT   INAME  ISTAGE   IAUTO
                              3       1       0       0       0       0       1       0       0
                                                  ROUTING DATA
                  QLOSS   CLOSS     AVG    IRES   ISAME    IOPT    IPMP            LSTR
                    0.0   0.000    0.00       1       1       0       0               0

                          NSTPS   NSTDL     LAG   AMSKK       X     TSK   STORA  ISPRAT
                              1       0       0   0.000   0.000   0.000      0.       0

 NORMAL DEPTH CHANNEL ROUTING
 ----------------------------

     QN(1)   QN(2)   QN(3)   ELNVT   ELMAX   RLNTH     SEL
     .0350   .0350   .0350   476.0   500.0    700.  .08600

     CROSS SECTION COORDINATES--STA,ELEV,STA,ELEV--ETC
         0.00  500.00   30.00  490.00   60.00  480.00   72.00  476.00   80.00  476.00
       100.00  480.00  120.00  490.00  170.00  500.00

 STORAGE      0.00       .26       .74      1.41      2.26      3.25      4.36      5.60      6.96      8.46
             10.02     11.84     13.75     15.87     18.19     20.72     23.45     26.39     29.53     32.88

                                                                                      Sheet 57 of 85

 OUTFLOW      0.00    191.07    776.06   1871.51   3892.20   6694.99  10228.07  14560.86  19722.81  25753.83
          32697.71  40562.41  49269.75  59052.24 [illegible] [illegible] [illegible] 111728.25 [illegible] 147245.45
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CROSS SECTION COORDINATES--STA,ELEV,STA,FLEV--ETC
   0.00  500.00   30.00  490.00   60.00  480.00   72.00  476.00   80.00  476.00
  100.(    0.0(    ).00      00       0  5

STORAGE       0.00       .26       .74      1.41      2.26      3.25      4.36      5.60      6.96      8.46
             10.08     11.84     13.75     15.87     18.19     20.72     23.45     26.39     29.53     32.28



OUTFLOW       0.00    191.07    776.04   1871.51   3892.90   6684.99  10228.09  14560.86  19722.81  25753.83
          32693.81  40582.41  49209.75  59032.24  70134.11  82581.95  96446.30 111798.25 128708.21 147245.45

STAGE       476.00    477.26    478.53    479.79    481.05    482.32    483.58    484.84    486.11    487.37
            488.63    489.89    491.16    492.42    493.68    494.95    496.21    497.47    498.74    500.00

FLOW          0.00    191.07    776.04   1871.51   3892.90   6684.99  10228.09  14560.86  19722.81  25753.83
          32693.81  40582.41  49209.75  59032.24  70134.11  82581.95  96446.30 111798.25 128708.21 147245.45

                             STATION     3, PLAN 1, RTIO 1

                                        OUTFLOW
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        1.        1.        1.        1.        1.        1.        1.
            2.        2.        2.        2.        2.        3.        3.        3.        3.        3.
            3.        3.        3.        3.        3.        3.        3.        2.        2.        2.
            2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
            2.        3.        3.        3.        3.        3.        3.        3.        3.        3.
            3.        3.        3.        4.        4.        5.        6.        7.        7.        8.
            9.       10.       11.       11.       12.       13.       13.       14.       15.       16.
           18.       25.       40.       59.      119.      291.      370.      404.      491.      650.
          851.      921.      851.      724.      624.      547.      478.      406.      328.      242.
          175.      123.      103.       93.       88.       84.       80.       77.       75.       72.
           70.       70.       69.       68.       67.       66.       65.       64.       62.       61.

                                          STOR
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        1.        1.
            1.        1.        1.        1.        1.        1.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
            0.        0.        0.        0.        0.        0.        0.        0.        0.        0.

                                          STAGE
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
          476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.1
          476.1     476.1     476.1     476.1     476.1     476.1     476.1     476.1     476.1     476.1
          476.1     476.2     476.3     476.4     476.8     477.5     477.6     477.7     477.9     478.3
          478.6     478.7     478.6     478.4     478.2     478.0     477.9     477.7     477.6     477.4
          477.2     476.8     476.7     476.6     476.6     476.6     476.5     476.5     476.5     476.5


          476.5     476.5     476.5     476.5     476.4     476.4     476.4     476.4     476.4     476.4
```

Sheet 60 of 85

```
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     475.0     476.0     476.0     476.0     476.0     476.0     476.0     475.0     476.1
     476.      476       47        4         .                 1        .1       6.1      76.1
     476.1     476.2     476.3     476.4     476.8     477.5     477.6     477.7     477.9     478.3
     478.6     478.7     478.6     478.4     478.2     478.0     477.9     477.7     477.6     477.4
     477.2     476.8     476.7     476.6     476.6     476.6     476.5     476.5     476.5     476.5


     476.5     476.5     476.5     476.5     476.4     476.4     476.4     476.4     476.4     476.4

                                  PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME
                         CFS      921.      477.      142.       69.        10327.
                         CMS       26.       14.        4.        2.          292.
                      INCHES               17.07     20.37     20.53         20.53
                          MM              433.52    517.41    521.39        521.39
                       AC-FT                237.      282.      284.          284.
                   THOUS CU M               292.      348.      351.          351.

                                     MAXIMUM STORAGE =          1.

 MAXIMUM STAGE IS     478.7

                                     STATION       3, PLAN 1, RTIO 2

                                              OUTFLOW
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        1.        1.        1.        1.
        1.        1.        2.        2.        2.        2.        2.        2.        2.        2.
        2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
        2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
        2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
        2.        2.        3.        3.        3.        4.        4.        5.        6.        6.
        7.        7.        8.        8.        9.       10.       10.       11.       11.       12.
       14.       17.       20.       33.       42.       65.      156.      284.      358.      483.
      627.      691.      640.      549.      470.      411.      360.      309.      248.      187.
      137.      101.       83.       74.       71.       69.       69.       67.       67.       65.
       64.       63.       61.       60.       58.       57.       56.       54.       53.       51.

                                              STOR
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        1.        1.        1.        1.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.

                                              STAGE
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
```

Sheet 61 of 85

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     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
```

```
        476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
        476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.      476
        4         4                       0        .0       6.0      76.0     476.0     476.0     476.0
        476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
        476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
        476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0



        476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
        476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
        476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
        476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
        476.0     476.0     476.1     476.1     476.1     476.1     476.1     476.1     476.1     476.1
        476.1     476.1     476.1     476.2     476.3     476.4     477.0     477.5     477.6     477.9
        478.2     478.3     478.2     478.0     477.9     477.7     477.6     477.5     477.4     477.2
        476.9     476.7     476.5     476.5     476.5     476.5     476.5     476.4     476.4     476.4
        476.4     476.4     476.4     476.4     476.4     476.4     476.4     476.4     476.3     476.3

                                 PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
                         CFS     691.      342.       104.        50.          7541.
                         CMS      20.       10.         3.         1.           214.
                      INCHES             12.25      14.87      14.99          14.99
                          MM            311.18  [illegible]    380.74         380.74
                       AC-FT              179.  [illegible]      207.           209.
                 THOUS CU M               209.       254.  [illegible]         256.


                                       MAXIMUM STORAGE =          1.


  MAXIMUM STAGE IS      478.3

                                       STATION       3, PLAN 1, RTIO 3

                                                    OUTFLOW
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        1.        1.
             1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
             1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
             1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
             1.        1.        1.        1.        1.        1.        1.        1.        1.        2.
             2.        2.        2.        2.        2.        3.        3.        3.        4.        4.
             5.        5.        5.        6.        6.        6.        7.        7.        7.        8.
             9.       11.       14.       17.       20.       30.       43.       55.       72.      239.
           406.      450.      435.      365.      323.      273.      246.      205.      173.      129.
           100.       75.       70.       56.       66.       63.       62.       59.       58.       55.
            54.       52.       50.       49.       47.       45.       44.       42.       41.       39.

                                                     STOR
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
             0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
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Sheet 62 of 85

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                                                     STAGE
        476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
        476.0     476.0     476.0     476.0     476.0     476.0     476.0
```

```
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                                                0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.

                                                        STAGE
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
      476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.1
      476.1     476.1     476.1     476.1     476.1     476.2     476.3     476.4     476.5     477.4
      477.7     477.8     477.8     477.6     477.5     477.4     477.4     477.3     477.1     476.9
      476.7     476.5     476.5     476.4     476.4     476.4     476.4     476.4     476.4     476.4
      476.4     476.3     476.3     476.3     476.3     476.3     476.3     476.3     476.3     476.3

                              PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
                      CFS     450.      209.        66.        32.          4779.
                      CMS      13.        6.         2.         1.           135.
                   INCHES               7.46       9.42       9.50           9.50
                       MM             189.55     239.30     241.29         241.29
                    AC-FT               103.       131.       132.           132.
               THOUS CU M               128.       161.       162.           162.

                                 MAXIMUM STORAGE =        0.

MAXIMUM STAGE IS      477.8

                                 STATION       3, PLAN 1, RTIO 4

                                                       OUTFLOW
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        1.        1.        1.        1.        1.        1.        1.        1.
         1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
         1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
         1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
         1.        1.        1.        1.        1.        1.        1.        2.        2.        2.
         2.        2.        3.        3.        3.        3.        3.        4.        4.        4.
         5.        6.        7.        8.       10.       12.       14.       16.       19.       26.
        41.       56.       68.      112.      144.      138.      126.      109.       92.       75.
        69.       66.       62.       59.       56.       53.       51.       48.       46.       43.
        41.       39.       37.       36.       34.       32.       31.       29.       28.       27.

                                                       STOR
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
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Shet 63 of 85

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         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
```

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     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                                             .         0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.


     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.

                                             STAGE
   476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     477.0     476.0     476.0     476.0     476.0     476.0     476.0     476.0
   476.0     476.0     477.0     476.1     476.1     476.1     476.1     476.1     476.1     476.2
   476.3     476.4     476.4     476.7     477.0     476.9     476.8     476.7     476.6     476.5
   476.5     476.4     476.4     476.4     476.4     476.4     476.3     476.3     476.3     476.3
   476.3     476.3     476.2     476.2     476.2     476.2     476.2     476.2     476.2     476.2

                            PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME
                    CFS     144.       79.       28.       14.          2029.
                    CMS       4.        2.        1.        0.            57.
                 INCHES               2.84      3.99      4.03          4.03
                     MM              72.01    101.44    102.44        102.44
                  AC-FT                39.       55.       56.           56.
             THOUS CU M                48.       68.       69.           69.


                                  MAXIMUM STORAGE =        0.

 MAXIMUM STAGE IS      477.0


           **********          **********          **********          **********          **********

                                   SUB-AREA RUNOFF COMPUTATION

                2 SUB-AREA 1 RUN-OFF

                             ISTAQ   ICOMP   IECON   ITAPE    JPLT    JPRT   INAME  ISTAGE   IAUTO
                                 2       0       0       0       0       0       1       0       0
                                                   HYDROGRAPH DATA
                 IHYDG    IUHG   TAREA    SNAP   TRSDA   TRSPC   RATIO   ISNOW   ISAME   LOCAL
                     1       1     .09    0.00     .46    0.00   0.000       0       1       0
                                                     PRECIP DATA
                           SPFE     PMS      R6     R12     R24     R48     R72     R96
                           0.00   22.00  112.00  123.00  133.00  141.00    0.00    0.00
 TRSPC COMPUTED BY THE PROGRAM IS  .800


                                               LOSS DATA
```

Sheet 64 of 85

1	1	.00	0.00	.46	0.00	0.000	0	1	0	

P DAT.

STRE	PES	R6	R12	R24	R48	R72	R96
0.00	22.00	112.00	123.00	133.00	141.00	0.00	0.00

TRSPC COMPUTED BY THE PROGRAM IS .200

LOSS DATA

LROPT	STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0	0.00	0.00	1.00	0.00	0.00	1.00	1.00	.10	0.00	.07

UNIT HYDROGRAPH DATA

TP= .73 CP= .63 NTA= 0

RECESSION DATA

STRTQ= -1.00 QRCSN= -.10 RTIOR= 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 2.67 AND R= 1.86 INTERVALS

UNIT HYDROGRAPH 12 END-OF-PERIOD ORDINATES, LAG= .73 HOURS, CP= .63 VOL= 1.00

12. 37. 46. 33. 19. 11. 6. 4. 2. 1.
1. 0.

END-OF-PERIOD FLOW

MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q	MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q
1.01	.20	1	.00	.00	.00	0.	1.02	1.20	76	.04	.01	.03	1.
1.01	.40	2	.00	.00	.00	0.	1.02	1.40	77	.04	.01	.03	1.
1.01	1.00	3	.00	.00	.00	0.	1.02	2.00	78	.04	.01	.03	1.
1.01	1.20	4	.00	.00	.00	0.	1.02	2.20	79	.04	.01	.03	1.
1.01	1.40	5	.00	.00	.00	0.	1.02	2.40	80	.04	.01	.03	1.
1.01	2.00	6	.00	.00	.00	0.	1.02	3.00	81	.04	.01	.03	1.
1.01	2.20	7	.00	.00	.00	0.	1.02	3.20	82	.04	.01	.03	1.
1.01	2.40	8	.00	.00	.00	0.	1.02	3.40	83	.04	.01	.03	1.
1.01	3.00	9	.00	.00	.00	0.	1.02	4.00	84	.04	.01	.03	1.
1.01	3.20	10	.00	.00	.00	0.	1.02	4.20	85	.04	.01	.03	1.
1.01	3.40	11	.00	.00	.00	0.	1.02	4.40	86	.04	.01	.03	1.
1.01	4.00	12	.00	.00	.00	0.	1.02	5.00	87	.04	.01	.03	1.
1.01	4.20	13	.00	.00	.00	0.	1.02	5.20	88	.04	.01	.03	1.
1.01	4.40	14	.00	.00	.00	0.	1.02	5.40	89	.04	.01	.03	1.
1.01	5.00	15	.00	.00	.00	0.	1.02	6.00	90	.04	.01	.03	1.
1.01	5.20	16	.00	.00	.00	0.	1.02	6.20	91	.11	.08	.03	2.
1.01	5.40	17	.00	.00	.00	0.	1.02	6.40	92	.11	.08	.03	5.
1.01	6.00	18	.00	.00	.00	0.	1.02	7.00	93	.11	.08	.03	8.
1.01	6.20	19	.01	.00	.01	0.	1.02	7.20	94	.11	.08	.03	10.
1.01	6.40	20	.01	.00	.01	0.	1.02	7.40	95	.11	.08	.03	12.
1.01	7.00	21	.01	.00	.01	0.	1.02	8.00	96	.11	.08	.03	12.
1.01	7.20	22	.01	.00	.01	0.	1.02	8.20	97	.11	.08	.03	13.
1.01	7.40	23	.01	.00	.01	0.	1.02	8.40	98	.11	.08	.03	13.
1.01	8.00	24	.01	.00	.01	0.	1.02	9.00	99	.11	.08	.03	13.
1.01	8.20	25	.01	.00	.01	0.	1.02	9.20	100	.11	.08	.03	13.
1.01	8.40	26	.01	.00	.01	0.	1.02	9.40	101	.11	.08	.03	13.
1.01	9.00	27	.01	.00	.01	0.	1.02	10.00	102	.11	.08	.03	13.
1.01	9.20	28	.01	.00	.01	0.	1.02	10.20	103	.11	.08	.03	13.
1.01	9.40	29	.01	.00	.01	0.	1.02	10.40	104	.11	.08	.03	13.
1.01	10.00	30	.01	.00	.01	0.	1.02	11.00	105	.11	.08	.03	13.
1.01	10.20	31	.01	.00	.01	0.	1.02	11.20	106	.11	.08	.03	13.
1.01	10.40	32	.01	.00	.01	0.	1.02	11.40	107	.11	.08	.03	13.
1.01	11.00	33	.01	.00	.01	0.	1.02	12.00	108	.11	.08	.03	13.
1.01	11.20	34	.01	.00	.01	0.	1.02	12.20	109	.66	.63	.03	20.
1.01	11.40	35	.01	.00	.01	0.	1.02	12.40	110	.66	.63	.03	40.
1.01	12.00	36	.01	.00	.01	0.	1.02	13.00	111	.66	.63	.03	66.
1.01	12.20	37	.04	.00	.04	0.	1.02	13.20	112	.79	.76	.03	86.
1.01	12.40	38	.04	.00	.04	0.	1.02	13.40	113	.79	.76	.03	101.
1.01	13.00	39	.04	.00	.04	0.	1.02	14.00	114	.79	.76	.03	113.
1.01	13.20	40	.05	.00	.04	0.	1.02	14.20	115	.99	.95	.03	124.
1.01	13.40	41	.05	.00	.04	0.	1.02	14.40	116	.99	.95	.03	135.

Sheet 5 of 55

1.01	14.00	42	.05	.00	.04	1.	1.02	15.00	117	.99	.95	.03	147.
1.01	14.20	43	.04	.00	.04	1.	1.02	15.20	118	1.72	1.69	.03	144.
1.01	14.40	44	.04	.00	.04	1.	1.02	15.40	119	1.72	1.69	.03	139.

1.01	12.00	36	.01	.00	.01	0.	1.02	13.00	111	.66	.63	.03	66.
1.01	12.20	37	.04	.00	.04	0.	1.02	13.20	112	.70	.67	.03	86.
	12		.04	.00			.02	0			.70	.03	101.
1.01	13.00	39	.04	.00	.04	0.	1.02	14.00	114	.79	.76	.03	113.
1.01	13.20	40	.05	.00	.04	0.	1.02	14.20	115	.99	.95	.03	124.
1.01	13.40	41	.05	.00	.04	0.	1.02	14.40	116	.99	.95	.03	135.
1.01	14.00	42	.05	.00	.04	1.	1.02	15.00	117	.99	.95	.03	147.
1.01	14.20	43	.06	.00	.06	1.	1.02	15.20	118	1.72	1.69	.03	164.
1.01	14.40	44	.06	.00	.06	1.	1.02	15.40	119	4.72	4.69	.03	232.
1.01	15.00	45	.06	.00	.06	1.	1.02	16.00	120	1.05	1.02	.03	337.
1.01	15.20	46	.10	.01	.10	1.	1.02	16.20	121	.92	.89	.03	363.
1.01	15.40	47	.28	.02	.26	1.	1.02	16.40	122	.92	.89	.03	303.
1.01	16.00	48	.08	.03	.04	2.	1.02	17.00	123	.92	.89	.03	241.
1.01	16.20	49	.06	.02	.03	3.	1.02	17.20	124	.72	.69	.03	202.
1.01	16.40	50	.06	.02	.03	3.	1.02	17.40	125	.72	.69	.03	173.
1.01	17.00	51	.06	.02	.03	4.	1.02	18.00	126	.72	.69	.03	152.
1.01	17.20	52	.04	.01	.03	4.	1.02	18.20	127	.06	.03	.03	139.
1.01	17.40	53	.04	.01	.03	3.	1.02	18.40	128	.06	.03	.03	98.
1.01	18.00	54	.04	.01	.03	3.	1.02	19.00	129	.06	.03	.03	63.
1.01	18.20	55	.00	.00	.00	3.	1.02	19.20	130	.06	.03	.03	38.
1.01	18.40	56	.00	.00	.00	2.	1.02	19.40	131	.06	.03	.03	35.
1.01	19.00	57	.00	.00	.00	1.	1.02	20.00	132	.06	.03	.03	34.
1.01	19.20	58	.00	.00	.00	1.	1.02	20.20	133	.06	.03	.03	32.
1.01	19.40	59	.00	.00	.00	0.	1.02	20.40	134	.06	.03	.03	31.
1.01	20.00	60	.00	.00	.00	0.	1.02	21.00	135	.06	.03	.03	30.
1.01	20.20	61	.00	.00	.00	0.	1.02	21.20	136	.06	.03	.03	29.
1.01	20.40	62	.00	.00	.00	0.	1.02	21.40	137	.06	.03	.03	27.
1.01	21.00	63	.00	.00	.00	0.	1.02	22.00	138	.06	.03	.03	26.
1.01	21.20	64	.00	.00	.00	0.	1.02	22.20	139	.06	.03	.03	25.
1.01	21.40	65	.00	.00	.00	0.	1.02	22.40	140	.06	.03	.03	24.
1.01	22.00	66	.00	.00	.00	0.	1.02	23.00	141	.06	.03	.03	23.
1.01	22.20	67	.00	.00	.00	0.	1.02	23.20	142	.06	.03	.03	22.
1.01	22.40	68	.00	.00	.00	0.	1.02	23.40	143	.06	.03	.03	22.
1.01	23.00	69	.00	.00	.00	0.	1.03	0.00	144	.06	.03	.03	21.
1.01	23.20	70	.00	.00	.00	0.	1.03	.20	145	0.00	0.00	0.00	20.
1.01	23.40	71	.00	.00	.00	0.	1.03	.40	146	0.00	0.00	0.00	19.
1.02	.00	72	.00	.00	.00	0.	1.03	1.00	147	0.00	0.00	0.00	18.
1.02	.20	73	.04	.01	.03	0.	1.03	1.20	148	0.00	0.00	0.00	18.
1.02	.40	74	.04	.01	.03	0.	1.03	1.40	149	0.00	0.00	0.00	17.
1.02	1.00	75	.04	.01	.03	1.	1.03	2.00	150	0.00	0.00	0.00	16.
									SUM	24.82	21.39	3.43	4073.
										(630.)	(543.)	(87.)	(115.33)

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	363.	176.	56.	27.	4050.
CMS	10.	5.	2.	1.	116.
INCHES		18.18	23.17	23.43	23.43
MM		461.79	588.48	595.09	595.09
AC-FT		87.	111.	112.	112.
THOUS CU M		108.	137.	139.	139.

HYDROGRAPH AT STA 2 FOR PLAN 1, RTIO 1

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	1.	1.	1.	1.	1.	1.	2.	3.	3.
4.	4.	3.	3.	3.	2.	1.	1.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
2.	5.	8.	10.	12.	12.	13.	13.	13.	13.
13.	13.	13.	13.	13.	13.	13.	13.	20.	40.

Sheet 6 of 10

60.	84.	101.	113.	124.	135.	147.	164.	232.	337.
363.	303.	241.	202.	173.	152.	139.	98.	63.	38.
35.	34.	32.	31.	30.	29.	27.	26.	25.	24.
23.	22.	22.	21.	20.	19.	18.	18.	17.	16.

4.	4.	3.	3.	3.	2.	1.	1.	0.	0.	
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
0							1.	1.	1.	
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	
2.	5.	8.	10.	12.	12.	13.	13.	13.	13.	
13.	13.	13.	13.	13.	13.	13.	13.	20.	40.	

66.	86.	101.	113.	124.	135.	147.	164.	232.	337.
353.	303.	241.	202.	173.	152.	130.	98.	63.	38.
35.	34.	32.	31.	30.	28.	27.	26.	25.	24.
23.	22.	22.	21.	20.	19.	18.	18.	17.	16.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	363.	176.	56.	27.	4080.
CMS	10.	5.	2.	1.	116.
INCHES		18.18	23.17	23.43	23.43
MM		461.79	588.48	595.09	595.09
AC-FT		87.	111.	112.	112.
THOUS CU M		108.	137.	139.	139.

HYDROGRAPH AT STA 2 FOR PLAN 1, RTIO 2

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	2.	2.
3.	3.	3.	2.	2.	1.	1.	1.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
2.	4.	6.	8.	9.	9.	10.	10.	10.	10.
10.	10.	10.	10.	10.	10.	10.	10.	15.	30.
49.	64.	76.	85.	93.	102.	110.	123.	174.	253.
273.	227.	181.	151.	130.	114.	98.	73.	47.	28.
26.	25.	24.	23.	22.	21.	21.	20.	19.	18.
18.	17.	16.	16.	15.	14.	14.	13.	13.	12.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	273.	132.	42.	20.	3060.
CMS	8.	4.	1.	1.	87.
INCHES		13.64	17.38	17.57	17.57
MM		346.34	441.36	446.32	446.32
AC-FT		65.	83.	84.	84.
THOUS CU M		81.	103.	104.	104.

HYDROGRAPH AT STA 2 FOR PLAN 1, RTIO 3

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	1.	1.	1.	2.
2.	2.	2.	2.	1.	1.	1.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	2.	4.	5.	6.	6.	6.	6.	7.	7.
7.	7.	7.	7.	7.	7.	7.	7.	10.	20.
33.	43.	51.	57.	62.	68.	74.	82.	116.	168.
182.	152.	120.	101.	87.	76.	65.	49.	31.	19.
13.	12.	16.	16.	15.	14.	14.	13.	13.	12.
12.	11.	11.	10.	10.	10.	9.	9.	8.	8.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	192.	88.	29.	14.	2040.
CMS	5.	2.	1.	0.	58.
INCHES		9.09	11.58	11.71	11.71

Sheet 17 of 25

33.	43.	51.	57.	62.	68.	74.	82.	116.	168.
182.	159.	139.	124.	97.	71.	55.	49.	31.	19.
1.						4.	13.	13.	12.
12.	11.	11.	10.	10.	10.	9.	9.	8.	8.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	182.	88.	28.	14.	2040.
CMS	5.	2.	1.	0.	58.
INCHES		9.09	11.58	11.71	11.71
MM		230.90	294.24	297.55	297.55
AC-FT		44.	56.	56.	56.
THOUS CU M		54.	69.	69.	69.

HYDROGRAPH AT STA 2 FOR PLAN 1, RTIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	2.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	5.	10.
16.	21.	25.	28.	31.	34.	37.	44.	58.	84.
91.	74.	60.	50.	43.	38.	33.	24.	16.	9.
9.	8.	8.	8.	7.	7.	7.	7.	6.	6.
6.	6.	5.	5.	5.	5.	5.	4.	4.	4.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	91.	44.	14.	7.	1020.
CMS	3.	1.	0.	0.	29.
INCHES		4.55	5.79	5.86	5.86
MM		115.45	147.12	148.77	148.77
AC-FT		22.	28.	28.	28.
THOUS CU M		27.	34.	35.	35.

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COMBINE HYDROGRAPHS

2 COMBINE ROUTED HYDROGRAPH WITH SUB AREA 2 INFLOW

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
2	2	0	0	0	0	1	0	0

SUM OF 2 HYDROGRAPHS AT 2 PLAN 1 RTIO 1

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
1.	1.	1.	1.	1.	2.	3.	4.	5.	
5.	6.	6.	5.	5.	4.	4.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
5.	9.	11.	14.	16.	17.	19.	20.	21.	21.
22.	23.	24.	25.	25.	24.	27.	27.	35.	56.

84.	111.	141.	171.	242.	426.	517.	569.	725.	997.
1215.	1296.	1192.	995.	797.	595.	444.	334.	280.	280.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1.	1.	1.	1.	1.	1.	2.	3.	4.	5.
5.	6.	6.	5.	5.	4	4.	3.	3.	3.
3.	3							3.	3.
3.	3.	2.	3.	3.	3.	3.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
5.	8.	11.	14.	16.	17.	19.	20.	21.	21.
22.	23.	24.	25.	25.	26.	27.	27.	35.	56.

84.	111.	141.	171.	242.	426.	517.	569.	723.	987.
1215.	1224.	1092.	925.	797.	694.	608.	504.	391.	280.
210.	161.	136.	124.	118.	112.	108.	104.	100.	96.
94.	92.	91.	89.	87.	85.	83.	81.	79.	77.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1224.	643.	198.	96.	14407.
CMS	35.	18.	6.	3.	408.
INCHES		17.08	21.09	21.27	21.27
MM		433.94	535.68	540.34	540.34
AC-FT		319.	393.	397.	397.
THOUS CU M		393.	485.	490.	490.

SUM OF 2 HYDROGRAPHS AT 2 PLAN 1 RTIO 2

0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
1.	1.	1.	1.	1.	1.	1.	2.	3.	3.
4.	4.	4.	4.	4.	3.	3.	3.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
4.	6.	9.	11.	12.	13.	14.	15.	15.	16.
17.	17.	18.	18.	19.	19.	20.	20.	26.	42.
63.	81.	96.	118.	142.	165.	267.	407.	532.	736.
900.	918.	820.	701.	600.	525.	458.	383.	295.	215.
163.	126.	107.	98.	93.	91.	90.	87.	86.	83.
82.	79.	77.	75.	73.	71.	69.	67.	65.	63.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	918.	464.	146.	71.	10602.
CMS	26.	13.	4.	2.	300.
INCHES		12.33	15.52	15.65	15.65
MM		313.13	394.11	397.61	397.61
AC-FT		250.	289.	292.	292.
THOUS CU M		284.	357.	360.	360.

SUM OF 2 HYDROGRAPHS AT 2 PLAN 1 RTIO 3

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	1.	1.	1.	1.	1.	1.	2.	2.
3.	3.	3.	3.	2.	2.	2.	2.	2.	2.
2.	2.	2.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
3.	4.	6.	7.	8.	9.	9.	10.	10.	11.
11.	12.	12.	12.	13.	13.	13.	14.	17.	28.
42.	54.	64.	73.	82.	99.	116.	137.	188.	407.
590.	601.	556.	464.	409.	340.	312.	254.	205.	148.
117.	91.	86.	82.	81.	77.	75.	72.	70.	68.
66.	63.	61.	59.	57.	55.	53.	51.	49.	48.

That on f 25

PEAK 6-HOUR 24-HOUR 72-HOUR TOTAL VOLUME

1.	1.	1.	1.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	4.	6.	9.	10.	10.	11.
42.	54.	64.	73.	82.	98.	116.	137.	188.	407.
590.	601.	556.	466.	409.	349.	312.	254.	205.	148.
117.	91.	86.	82.	81.	77.	75.	72.	70.	68.
66.	63.	61.	59.	57.	55.	53.	51.	49.	48.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	601.	285.	94.	45.	6819.
CMS	17.	8.	3.	1.	193.
INCHES		7.57	9.98	10.07	10.07
MM		192.34	253.43	255.76	255.76
AC-FT		141.	186.	188.	188.
THOUS CU M		174.	230.	232.	232.

SUM OF 2 HYDROGRAPHS AT 2 PLAN 1 RTIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	2.	3.	4.	4.	5.	5.	5.	5.	5.
6.	6.	6.	6.	6.	7.	7.	9.	14.	
21.	27.	32.	37.	41.	46.	51.	57.	77.	111.
132.	131.	128.	163.	187.	176.	158.	133.	108.	85.
75.	74.	70.	67.	64.	60.	57.	55.	52.	49.
47.	45.	43.	41.	39.	37.	35.	34.	32.	31.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	197.	111.	42.	20.	3049.
CMS	5.	3.	1.	1.	86.
INCHES		2.95	4.46	4.50	4.50
MM		75.00	113.19	114.35	114.35
AC-FT		55.	83.	84.	84.
THOUS CU M		68.	103.	104.	104.

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SUB-AREA RUNOFF COMPUTATION

3 SUB-AREA 3 RUNOFF

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
3	0	0	0	0	0	1	0	0

HYDROGRAPH DATA

IHYDG	IUNG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	.11	0.00	.46	0.00	0.000	0	1	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.00	22.00	112.00	123.00	133.00	141.00	0.00	0.00

TAS-C COMPUTES BY THE PROGRAM IS .00

LOSS DATA

LROPT	STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP

PRECIP DATA

SPFE	PMS	R6				R	R9
0.00	[illegible]	[illegible]	[illegible]	[illegible]	141.00	0.00	0.00

TRSPC COMPUTED BY THE PROGRAM IS .800

LOSS DATA

LROPT	STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0	0.00	0.00	1.00	0.00	0.00	1.00	1.00	.10	0.00	.06

UNIT HYDROGRAPH DATA
TP= .77 CP= .63 NTA= 0

RECESSION DATA
STRTQ= -1.00 QRCSN= -.10 RTIOR= 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 2.71 AND R= 2.05 INTERVALS

UNIT HYDROGRAPH 13 END-OF-PERIOD ORDINATES, LAG= .77 HOURS, CP= .62 VOL= 1.00

13. 42. 54. 41. 25. 15. 9. 6. 3. 2.
1. 1. 0.

MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	END-OF-PERIOD FLOW COMP Q	MO.DA	HR.MN	PERIOD	RAIN	EXCS	LOSS	COMP Q
1.01	.20	1	.00	.00	.00	0.	1.02	1.20	76	.04	.01	.03	1.
1.01	.40	2	.00	.00	.00	0.	1.02	1.40	77	.04	.01	.03	1.
1.01	1.00	3	.00	.00	.00	0.	1.02	2.00	78	.04	.01	.03	1.
1.01	1.20	4	.00	.00	.00	0.	1.02	2.20	79	.04	.01	.03	2.
1.01	1.40	5	.00	.00	.00	0.	1.02	2.40	80	.04	.01	.03	2.
1.01	2.00	6	.00	.00	.00	0.	1.02	3.00	81	.04	.01	.03	2.
1.01	2.20	7	.00	.00	.00	0.	1.02	3.20	82	.04	.01	.03	2.
1.01	2.40	8	.00	.00	.00	0.	1.02	3.40	83	.04	.01	.03	2.
1.01	3.00	9	.00	.00	.00	0.	1.02	4.00	84	.04	.01	.03	2.
1.01	3.20	10	.00	.00	.00	0.	1.02	4.20	85	.04	.01	.03	2.
1.01	3.40	11	.00	.00	.00	0.	1.02	4.40	86	.04	.01	.03	2.
1.01	4.00	12	.00	.00	.00	0.	1.02	5.00	87	.04	.01	.03	2.
1.01	4.20	13	.00	.00	.00	0.	1.02	5.20	88	.04	.01	.03	2.
1.01	4.40	14	.00	.00	.00	0.	1.02	5.40	89	.04	.01	.03	2.
1.01	5.00	15	.00	.00	.00	0.	1.02	6.00	90	.04	.01	.03	2.
1.01	5.20	16	.00	.00	.00	0.	1.02	6.20	91	.11	.08	.03	3.
1.01	5.40	17	.00	.00	.00	0.	1.02	6.40	92	.11	.08	.03	5.
1.01	6.00	18	.00	.00	.00	0.	1.02	7.00	93	.11	.08	.03	9.
1.01	6.20	19	.01	.00	.01	0.	1.02	7.20	94	.11	.08	.03	12.
1.01	6.40	20	.01	.00	.01	0.	1.02	7.40	95	.11	.08	.03	14.
1.01	7.00	21	.01	.00	.01	0.	1.02	8.00	96	.11	.08	.03	15.
1.01	7.20	22	.01	.00	.01	0.	1.02	8.20	97	.11	.08	.03	15.
1.01	7.40	23	.01	.00	.01	0.	1.02	8.40	98	.11	.08	.03	16.
1.01	8.00	24	.01	.00	.01	0.	1.02	9.00	99	.11	.08	.03	16.
1.01	8.20	25	.01	.00	.01	0.	1.02	9.20	100	.11	.08	.03	16.
1.01	8.40	26	.01	.00	.01	0.	1.02	9.40	101	.11	.08	.03	16.
1.01	9.00	27	.01	.00	.01	0.	1.02	10.00	102	.11	.08	.03	16.
1.01	9.20	28	.01	.00	.01	0.	1.02	10.20	103	.11	.08	.03	16.
1.01	9.40	29	.01	.00	.01	0.	1.02	10.40	104	.11	.08	.03	16.
1.01	10.00	30	.01	.00	.01	0.	1.02	11.00	105	.11	.08	.03	16.
1.01	10.20	31	.01	.00	.01	0.	1.02	11.20	106	.11	.08	.03	16.
1.01	10.40	32	.01	.00	.01	0.	1.02	11.40	107	.11	.08	.03	16.
1.01	11.00	33	.01	.00	.01	0.	1.02	12.00	108	.11	.08	.03	16.
1.01	11.20	34	.01	.00	.01	0.	1.02	12.20	109	.66	.63	.03	23.
1.01	11.40	35	.01	.00	.01	0.	1.02	12.40	110	.66	.63	.03	46.
1.01	12.00	36	.01	.00	.01	0.	1.02	13.00	111	.66	.63	.03	76.
1.01	12.20	37	.04	.00	.04	0.	1.02	13.20	112	.79	.76	.03	100.
1.01	12.40	38	.04	.00	.04	0.	1.02	13.40	113	.79	.76	.03	119.
1.01	13.00	39	.04	.00	.04	0.	1.02	14.00	114	.79	.76	.03	135.
1.01	13.20	40	.05	.00	.04	0.	1.02	14.20	115	.99	.95	.03	148.
1.01	13.40	41	.05	.00	.04	0.	1.02	14.40	116	.99	.95	.03	162.
1.01	14.00	42	.05	.00	.04	1.	1.02	15.00	117	.99	.95	.03	177.
1.01	14.20	43	.06	.00	.06	1.	1.02	15.20	118	1.72	1.69	.03	197.

Sheet 71 of 83

1.01	14.40	44	.06	.00	.06	1.	1.02	15.40	119	4.72	4.69	.03	274.
1.01	15.00	45	.06	.00	.06	1.	1.02	16.00	120	1.05	1.02	.03	396.
1.01	15.20	46	.10	.01	.10	1.	1.02	16.20	121	.83	.80	.03	533.

1.01	12.00	36	.03	.00	.03	0.	1.02	13.00	111	.99	.95	.03	109.
1.01	12.20	37	.04	.00	.04	0.	1.02	13.20	112	.79	.76	.03	109.
	12.	3	.04	0			.02				.76	.03	19.
1.01	13.00	39	.04	.00	.04	0.	1.02	14.00	114	.99	.95	.03	135.
1.01	13.20	40	.05	.00	.04	0.	1.02	14.20	115	.99	.95	.03	148.
1.01	13.40	41	.05	.00	.04	0.	1.02	14.40	116	.99	.95	.03	162.
1.01	14.00	42	.05	.00	.04	1.	1.02	15.00	117	.99	.95	.03	177.
1.01	14.20	43	.06	.00	.06	1.	1.02	15.20	118	1.72	1.69	.03	197.
1.01	14.40	44	.06	.00	.06	1.	1.02	15.40	119	4.72	4.69	.03	274.
1.01	15.00	45	.06	.00	.06	1.	1.02	16.00	120	1.05	1.02	.03	394.
1.01	15.20	46	.10	.01	.10	1.	1.02	16.20	121	.92	.89	.03	433.
1.01	15.40	47	.28	.02	.27	1.	1.02	16.40	122	.92	.89	.03	371.
1.01	16.00	48	.06	.03	.04	2.	1.02	17.00	123	.92	.89	.03	300.
1.01	16.20	49	.06	.02	.03	3.	1.02	17.20	124	.72	.69	.03	254.
1.01	16.40	50	.06	.02	.03	4.	1.02	17.40	125	.72	.69	.03	219.
1.01	17.00	51	.06	.02	.03	4.	1.02	18.00	126	.72	.69	.03	192.
1.01	17.20	52	.04	.01	.03	4.	1.02	18.20	127	.06	.03	.03	166.
1.01	17.40	53	.04	.01	.03	4.	1.02	18.40	128	.06	.03	.03	127.
1.01	18.00	54	.04	.01	.03	4.	1.02	19.00	129	.06	.03	.03	84.
1.01	18.20	55	.00	.00	.00	3.	1.02	19.20	130	.06	.03	.03	53.
1.01	18.40	56	.00	.00	.00	2.	1.02	19.40	131	.06	.03	.03	42.
1.01	19.00	57	.00	.00	.00	2.	1.02	20.00	132	.06	.03	.03	41.
1.01	19.20	58	.00	.00	.00	1.	1.02	20.20	133	.06	.03	.03	39.
1.01	19.40	59	.00	.00	.00	1.	1.02	20.40	134	.06	.03	.03	39.
1.01	20.00	60	.00	.00	.00	0.	1.02	21.00	135	.06	.03	.03	36.
1.01	20.20	61	.00	.00	.00	0.	1.02	21.20	136	.06	.03	.03	35.
1.01	20.40	62	.00	.00	.00	0.	1.02	21.40	137	.06	.03	.03	33.
1.01	21.00	63	.00	.00	.00	0.	1.02	22.00	138	.06	.03	.03	32.
1.01	21.20	64	.00	.00	.00	0.	1.02	22.20	139	.06	.03	.03	31.
1.01	21.40	65	.00	.00	.00	0.	1.02	22.40	140	.06	.03	.03	29.
1.01	22.00	66	.00	.00	.00	0.	1.02	23.00	141	.06	.03	.03	28.
1.01	22.20	67	.00	.00	.00	0.	1.02	23.20	142	.06	.03	.03	27.
1.01	22.40	68	.00	.00	.00	0.	1.02	23.40	143	.06	.03	.03	26.
1.01	23.00	69	.00	.00	.00	0.	1.03	0.00	144	.06	.03	.03	25.
1.01	23.20	70	.00	.00	.00	0.	1.03	.20	145	0.00	0.00	0.00	24.
1.01	23.40	71	.00	.00	.00	0.	1.03	.40	146	0.00	0.00	0.00	23.
1.02	0.00	72	.00	.00	.00	0.	1.03	1.00	147	0.00	0.00	0.00	22.
1.02	.20	73	.04	.01	.03	0.	1.03	1.20	148	0.00	0.00	0.00	21.
1.02	.40	74	.04	.01	.03	0.	1.03	1.40	149	0.00	0.00	0.00	20.
1.02	1.00	75	.04	.01	.03	1.	1.03	2.00	150	0.00	0.00	0.00	20.
									SUM	24.82	21.35	3.47	4959.
										(630.)(	542.)(	88.)(	140.42)

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	433.	214.	69.	33.	4955.
CMS	12.	6.	2.	1.	140.
INCHES		18.07	23.04	23.29	23.29
MM		459.01	585.10	591.31	591.31
AC-FT		104.	135.	137.	137.
THOUS CU M		131.	167.	168.	168.

HYDROGRAPH AT STA 3 FOR PLAN 1, RTIO 1

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	1.	1.	1.	1.	1.	2.	3.	3.	4.
4.	4.	4.	4.	3.	2.	2.	1.	1.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	1.	1.	1.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
3.	5.	9.	12.	14.	15.	15.	16.	16.	16.
16.	16.	16.	16.	16.	16.	16.	16.	23.	46.
76.	100.	119.	135.	148.	162.	177.	197.	274.	394.
433.	371.	300.	254.	219.	192.	166.	127.	84.	53.

Sheet 72 of 93

0.	0.	0.	0.	1.	1.	1.	1.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
5.	5.	5.	5.	5.	5.	5.	5.	16.	16.
16.	16.	16.	16.	16.	16.	16.	16.	23.	46.
76.	100.	119.	135.	148.	162.	177.	197.	274.	394.
433.	371.	300.	254.	219.	192.	166.	127.	84.	53.
42.	41.	39.	38.	36.	35.	33.	32.	31.	29.
28.	27.	26.	25.	24.	23.	22.	21.	20.	20.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	433.	214.	68.	33.	4955.
CMS	12.	6.	2.	1.	140.
INCHES		18.07	23.04	23.28	23.28
MM		459.01	585.10	591.31	591.31
AC-FT		106.	135.	137.	137.
THOUS CU M		131.	167.	168.	168.

HYDROGRAPH AT STA 3 FOR PLAN 1, RTIO 2

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	1.	1.	1.	2.	3.
3.	3.	3.	3.	2.	2.	1.	1.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
2.	4.	7.	9.	10.	11.	11.	12.	12.	12.
12.	12.	12.	12.	12.	12.	12.	12.	18.	35.
57.	75.	99.	101.	111.	122.	132.	148.	205.	295.
324.	278.	225.	190.	164.	144.	124.	95.	63.	40.
32.	31.	27.	24.	27.	26.	25.	24.	23.	22.
21.	20.	20.	19.	18.	17.	17.	16.	15.	15.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	324.	160.	51.	25.	3716.
CMS	9.	5.	1.	1.	105.
INCHES		13.55	17.26	17.46	17.46
MM		344.26	438.43	443.49	443.49
AC-FT		79.	101.	102.	102.
THOUS CU M		99.	125.	126.	126.

HYDROGRAPH AT STA 3 FOR PLAN 1, RTIO 3

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	1.	1.	1.	2.
2.	2.	2.	2.	2.	1.	1.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	3.	5.	6.	7.	7.	8.	8.	8.	8.
8.	8.	8.	8.	8.	8.	8.	8.	12.	23.
36.	50.	67.	67.	74.	81.	88.	98.	137.	197.
216.	185.	150.	127.	110.	96.	83.	63.	42.	27.
21.	20.	20.	19.	18.	17.	17.	16.	15.	15.
14.	14.	13.	13.	12.	12.	11.	11.	10.	10.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	216.	107.	34.	17.	2478.
CMS	6.	3.	1.	0.	70.

Sheet 73 of 85

INCHES	9.04	11.52	11.64	11.64
MM	229.50	292.55	295.45	295.45
AC-FT	55.	68.	68.	68.
THOUS CU M	67.	84.	84.	84.

21.	20.	20.	19.	18.	17.	17.	16.	15.	15.
					12.	11.	11.	10.	10

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	216.	107.	34.	17.	2478.
CMS	6.	3.	1.	0.	70.

INCHES	9.04	11.52	11.64	11.64
MM	229.50	292.55	295.65	295.65
AC-FT	53.	68.	68.	68.
THOUS CU M	65.	83.	84.	84.

HYDROGRAPH AT STA 3 FOR PLAN 1, RTIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	1.	1.	1.	0.	0.	0.	1.	1.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	2.	3.	3.	4.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	6.	12.
19.	25.	30.	34.	37.	41.	44.	49.	68.	98.
105.	93.	75.	63.	55.	48.	41.	32.	21.	13.
11.	10.	10.	9.	9.	9.	9.	8.	8.	7.
7.	7.	7.	6.	6.	6.	6.	5.	5.	5.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	108.	53.	17.	8.	1239.
CMS	3.	2.	0.	0.	35.
INCHES		4.52	5.76	5.82	5.82
MM		114.75	146.28	147.83	147.83
AC-FT		26.	34.	34.	34.
THOUS CU M		33.	42.	42.	42.

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COMPINE HYDROGRAPHS

3 COMBINE SUBAREA 3 WITH COMPINED HYDROGRAPH

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
3	2	0	0	0	0	1	0	0

SUM OF 2 HYDROGRAPHS AT 3 PLAN 1 RTIO 1

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	2.	2.	2.	2.	3.	4.	6.	8.
9.	10.	10.	9.	8.	7.	5.	4.	4.	4.
4.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	4.	4.	5.	5.	5.	5.
5.	6.	5.	6.	6.	6.	6.	6.	6.	6.
8.	15.	21.	24.	30.	32.	34.	35.	36.	37.
38.	37.	40.	41.	41.	42.	43.	43.	58.	103.
150.	211.	661.	306.	390.	588.	694.	765.	997.	1391.
1647.	1595.	1392.	1179.	1016.	886.	774.	631.	475.	333.

Sheet 21 of 25

253.	202.	175.	142.	154.	147.	141.	135.	131.	126.
122.	117.	117.	114.	111.	110.	105.	102.	100.	97.

3.	3.	3.	3.	4.	4.	5.	5.	5.	5.	
5.	6.						6.	6.	6.	
8	1	2					55.	36.	37.	
38.	39.	40.	41.	41.	42.	43.	43.	58.	103.	
160.	211.	261.	306.	390.	588.	694.	765.	997.	1381.	
1647.	1595.	1392.	1179.	1016.	886.	774.	631.	475.	333.	

253.	202.	175.	162.	154.	147.	141.	135.	131.	126.
122.	119.	117.	114.	111.	108.	105.	102.	100.	97.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1647.	850.	266.	129.	19362.
CMS	47.	24.	8.	4.	548.
INCHES		17.20	21.56	21.75	21.75
MM		436.76	547.50	552.53	552.53
AC-FT		422.	529.	533.	533.
THOUS CU M		520.	652.	658.	658.

SUM OF 2 HYDROGRAPHS AT 3 PLAN 1 RTIO 2

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
1.	1.	1.	1.	1.	2.	2.	3.	5.	6.
7.	7.	7.	7.	6.	5.	4.	3.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	3.	3.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	5.	5.
6.	10.	15.	20.	22.	24.	25.	26.	27.	28.
29.	29.	30.	31.	31.	32.	32.	33.	44.	77.
120.	156.	186.	219.	253.	288.	399.	555.	737.	1031.
1224.	1196.	1045.	891.	764.	669.	582.	478.	358.	255.
195.	156.	137.	126.	120.	117.	115.	111.	109.	105.
103.	100.	97.	94.	91.	89.	86.	83.	81.	78.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1224.	619.	197.	95.	14319.
CMS	35.	18.	6.	3.	405.
INCHES		12.51	15.94	16.09	16.09
MM		317.77	404.81	408.58	408.58
AC-FT		307.	391.	394.	394.
THOUS CU M		378.	482.	487.	487.

SUM OF 2 HYDROGRAPHS AT 3 PLAN 1 RTIO 3

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
1.	1.	1.	1.	1.	1.	1.	2.	3.	4.
5.	5.	5.	4.	4.	3.	3.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	1.	1.
1.	1.	1.	2.	2.	2.	2.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
4.	7.	10.	13.	15.	16.	17.	18.	18.	19.
19.	20.	20.	20.	21.	21.	21.	22.	29.	51.
80.	104.	124.	141.	156.	179.	205.	236.	324.	604.
806.	786.	706.	593.	519.	445.	394.	318.	247.	174.
138.	112.	106.	101.	99.	94.	92.	88.	86.	82.
80.	77.	74.	71.	69.	66.	64.	62.	60.	57.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	906.	387.	129.	62.	9297.
CMS	23.	11.	4.	2.	263.
INCHES					

4.	[illegible]	[illegible]	[illegible]	[illegible]	21.	21.	22.	29.	51.
19.	20.	20.	20.	21.	21.	21.	22.	29.	51.
8[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	4.	18.	247.	174.
808.	7[illegible]	7[illegible]	[illegible]	[illegible]	[illegible]	205.	736.	324.	604.
138.	112.	106.	101.	99.	94.	92.	88.	86.	82.
80.	77.	74.	71.	69.	66.	64.	62.	60.	57.

PEAK 6-HOUR 24-HOUR 72-HOUR TOTAL VOLUME

CFS	806.	387.	128.	62.	9297.
CMS	23.	11.	4.	2.	263.
INCHES		7.82	10.35	10.44	10.44
MM		198.74	262.78	265.30	265.30
AC-FT		192.	254.	256.	256.
THOUS CU M		237.	313.	316.	316.

SUM OF 2 HYDROGRAPHS AT 3 PLAN 1 RTIO 4

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	2.	2.
2.	2.	2.	2.	2.	2.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	2.	2.
2.	5.	5.	7.	7.	8.	8.	9.	9.	9.
10.	10.	10.	10.	10.	11.	11.	11.	15.	26.
40.	52.	62.	70.	78.	86.	95.	107.	145.	209.
240.	224.	203.	226.	242.	224.	200.	165.	129.	98.
62.	54.	50.	76.	73.	69.	66.	63.	60.	57.
54.	52.	49.	47.	45.	43.	41.	39.	37.	36.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	242.	156.	59.	29.	4288.
CMS	7.	4.	2.	1.	121.
INCHES		3.20	4.77	4.82	4.82
MM		81.17	121.10	122.36	122.36
AC-FT		78.	117.	118.	118.
THOUS CU M		97.	144.	146.	146.

********** ********** ********** ********** **********

HYDROGRAPH ROUTING

TO ROUTE THROUGH LONG POND(INCLUDING FLOW OVER DEPRESSION)

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME	ISTAGE	IAUTO
10	1	0	0	0	0	1	0	0

ROUTING DATA

QLOSS	CLOSS	AVG	IRES	ISAME	IOPT	IPMP	LSTR
0.0	0.000	0.00	1	1	0	0	0

NSTPS	NSTDL	LAG	AMSXK	X	TSK	STORA	ISPRAT
1	0	0	0.000	0.000	0.000	115.	-1

STAGE	470.00	471.20	472.00	474.00	475.00	475.50	476.00	478.00
FLOW	0.00	24.00	53.00	150.00	180.00	378.00	891.00	6433.00
CAPACITY=	115.	133.	152.	174.	223.			

Sheet 76 of 85

ELEVATION=	470.	472.	474.	476.	480.			

CPEL SPWID COQW EXPW ELEVL COQL CAREA [illegible]

STAGE.	470.00	471.20	472.00	474.00	475.00	475.50	476.00	478.00
[illegible]	0.00	24.00	58.00	150.00	180.00	378.00	891.00	6433.00
CAPACITY=	115.	133.	152.	174.	223.			

ELEVATION= 470. 472. 474. 476. 480.

CREL	SPWID	COQW	EXPW	ELEVL	COQL	CAREA	EXPL
470.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

DFM DATA

TOPEL	COQD	EXPD	DAMWID
476.0	3.1	1.5	365.

STATION 10, PLAN 1, RATIO 1

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	1.	1.	1.	1.	1.	1.	1.	1.	2.
2.	3.	3.	3.	4.	4.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	5.	5.	5.	5.
5.	5.	6.	7.	8.	10.	11.	13.	14.	15.
17.	18.	19.	21.	22.	23.	24.	26.	29.	35.
45.	62.	84.	109.	140.	170.	424.	771.	897.	1353.
1609.	1626.	1414.	1211.	1033.	906.	816.	687.	535.	386.
320.	258.	211.	182.	178.	176.	174.	171.	168.	166.
162.	159.	156.	153.	150.	145.	140.	136.	131.	127.

STORAGE

115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	116.	116.
116.	116.	116.	116.	117.	117.	117.	117.	117.	117.
117.	117.	117.	117.	117.	117.	117.	117.	117.	117.
117.	117.	117.	117.	117.	117.	117.	117.	117.	117.
117.	117.	117.	117.	117.	117.	117.	117.	117.	117.
117.	117.	118.	118.	119.	119.	120.	120.	121.	122.
122.	123.	123.	124.	125.	125.	126.	126.	127.	128.
131.	134.	139.	144.	150.	159.	169.	172.	174.	175.
176.	176.	176.	175.	174.	174.	173.	171.	170.	168.
167.	165.	164.	163.	162.	162.	161.	160.	159.	158.
157.	155.	154.	153.	152.	151.	150.	149.	148.	147.

STAGE

470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.1	470.1	470.1
470.1	470.1	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.3	470.3	470.4	470.4	470.5	470.6	470.6	470.7	470.8
470.8	470.9	471.0	471.0	471.1	471.2	471.2	471.3	471.3	471.5
471.8	472.2	472.6	473.2	473.8	474.7	475.5	475.9	476.0	476.1

476.2	476.2	476.2	476.1	476.0	476.0	475.9	475.8	475.7	475.5
475.4	475.2	475.1	475.0	474.9	474.9	474.8	474.7	474.6	474.5
474.4	474.3	474.2	474.1	474.0	474.0	473.9	473.7	473.6	473.5

470.1	470.1	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.3	470.3	470.4	470.4	470.5	470.6	470.6	470.7	470.8
470.8	470.9	471.0	471.0	471.1	471.2	471.2	471.3	471.3	471.5
471.8	472.2	472.6	473.2	473.8	474.7	475.5	475.9	476.0	476.1

476.2	476.2	476.2	476.1	476.0	476.0	475.9	475.8	475.7	475.5
475.4	475.2	475.1	475.0	474.9	474.9	474.8	474.7	474.6	474.5
474.4	474.3	474.2	474.1	474.0	473.9	473.8	473.7	473.6	473.5

PEAK OUTFLOW IS 1628. AT TIME 40.67 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1628.	813.	251.	121.	18182.
CMS	46.	23.	7.	3.	515.
INCHES		16.44	20.30	20.43	20.43
MM		417.64	515.50	518.85	518.85
AC-FT		403.	499.	501.	501.
THOUS CU M		497.	614.	618.	618.

STATION 10, PLAN 1, RATIO 2

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	1.	1.	1.	1.	1.	1.
2.	2.	2.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	3.	3.	3.	3.	3.	3.	4.	4.
4.	4.	4.	5.	6.	7.	8.	9.	10.	12.
13.	14.	15.	16.	16.	17.	18.	19.	20.	23.
30.	42.	56.	75.	95.	118.	146.	172.	465.	959.
1222.	1203.	1074.	910.	811.	704.	615.	518.	404.	328.
259.	203.	178.	175.	171.	167.	163.	160.	156.	152.
148.	142.	136.	131.	126.	122.	117.	113.	109.	105.

STORAGE

115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	117.	117.	117.
117.	117.	117.	117.	118.	118.	119.	119.	120.	120.
120.	121.	121.	122.	122.	123.	123.	123.	124.	125.
127.	130.	133.	137.	141.	146.	151.	160.	169.	174.
175.	175.	174.	174.	173.	172.	171.	170.	168.	167.
165.	163.	162.	161.	160.	158.	157.	156.	154.	153.
152.	150.	149.	148.	147.	146.	145.	145.	144.	143.

STAGE

470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0

470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.1
470.1	470.1	470.1	470.1	470.1	470.2	470.2	470.2	470.2	470.2

STAGE

470.0	470.4	470.	47[illegible]	47[illegible]	4[illegible]		0	.0	0.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.1
470.1	470.1	470.1	470.1	470.1	470.1	470.2	470.2	470.2	470.2
470.2	470.2	470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1
470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1	470.1
470.1	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2	470.2
470.2	470.2	470.2	470.3	470.3	470.4	470.4	470.5	470.5	470.6
470.6	470.7	470.7	470.8	470.8	470.9	470.9	471.0	471.0	471.1
471.4	471.7	472.1	472.4	472.9	473.3	473.9	474.7	475.6	476.0
476.1	476.1	476.1	476.0	475.9	475.8	475.7	475.6	475.5	475.4
475.2	475.1	474.9	474.8	474.7	474.6	474.4	474.3	474.2	474.1
474.0	473.8	473.7	473.6	473.5	473.4	473.3	473.2	473.2	473.1

PEAK OUTFLOW IS 1222. AT TIME 40.33 HOURS

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1222.	576.	183.	89.	13299.
CMS	35.	16.	5.	3.	377.
INCHES		11.65	14.84	14.94	14.94
MM		295.82	376.98	379.49	379.49
AC-FT		286.	364.	366.	366.
THOUS CU M		352.	449.	452.	452.

STATION 10, PLAN 1, RATIO 3

END-OF-PERIOD HYDROGRAPH ORDINATES

OUTFLOW

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
1.	1.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
2.	3.	3.	4.	4.	5.	6.	6.	7.	8.
8.	9.	10.	10.	11.	12.	12.	13.	14.	15.
18.	23.	32.	42.	54.	68.	84.	102.	124.	160.
367.	847.	732.	638.	545.	473.	413.	360.	308.	242.
184.	176.	171.	166.	161.	156.	152.	145.	138.	131.
125.	119.	113.	108.	103.	99.	94.	90.	87.	83.

STORAGE

115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	115.	115.	115.	115.	115.	115.	115.	115.	115.
115.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	116.	116.	116.	116.	116.	116.	116.
116.	116.	116.	117.	117.	117.	117.	119.	118.	118.
119.	119.	119.	120.	120.	120.	120.	121.	121.	122.
123.	125.	127.	130.	133.	136.	139.	142.	147.	156.
168.	173.	172.	171.	170.	169.	169.	168.	166.	165.

Sheet 71 of 85

161.	161.	160.	158.	156.	154.	153.	151.	150.	148.
147.	146.	145.	144.	143.	142.	141.	140.	139.	139.

```
   116.      116.      116.      116.      116.      116.      116.      116.      116.      116.
   116.      116.      116.      116.      116.      116.      116.      116.      116.      116
   1                                        .        6.       16.      116.      116       116
   116.      116.      116.      117.      117.      117.      117.      118.      118.      118.
   119.      119.      119.      120.      120.      120.      120.      121.      121.      122.
   123.      125.      127.      130.      133.      136.      139.      142.      147.      156.
   165.      173.      172.      171.      170.      169.      169.      168.      166.      165.



   163.      161.      160.      158.      156.      154.      153.      151.      150.      148.
   147.      146.      145.      144.      143.      142.      141.      140.      139.      139.

                                          STAGE
  470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
  470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
  470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
  470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
  470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
  470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1
  470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1
  470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1
  470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1
  470.1     470.1     470.1     470.2     470.2     470.2     470.3     470.3     470.3     470.4
  470.4     470.5     470.5     470.5     470.5     470.6     470.6     470.6     470.7     470.8
  470.9     471.1     471.4     471.7     472.0     472.3     472.6     473.0     473.5     474.3
  475.5     476.0     475.8     475.8     475.7     475.6     475.5     475.5     475.3     475.2
  475.0     474.9     474.7     474.5     474.4     474.2     474.1     473.9     473.7     473.6
  473.5     473.4     473.2     473.1     473.0     472.9     472.9     472.8     472.7     472.6

PEAK OUTFLOW IS      847. AT TIME  40.67 HOURS

                                 PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
                         CFS     847.     347.      116.        56.         8441.
                         CMS      24.      10.        3.         2.          239.
                      INCHES               7.02      9.42       9.48         9.48
                          MM             178.25    239.19     240.87       240.87
                       AC-FT              172.      231.       233.         233.
                   THOUS CU M             212.      285.       287.         287.


                                   STATION     10, PLAN 1, RATIO 4

                                   END-OF-PERIOD HYDROGRAPH ORDINATES

                                          OUTFLOW
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
     1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
     1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
     1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
     1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
     1.        1.        1.        2.        2.        2.        3.        3.        3.        4.
     4.        5.        5.        5.        5.        6.        6.        6.        7.        8.
     9.       11.       14.       17.       21.       25.       32.       39.       49.       64.
    85.      104.      118.      130.      143.      153.      157.      159.      158.      155.
   150.      142.      135.      127.      121.      114.      108.      103.       97.       92.
    88.       83.       79.       75.       71.       68.       65.       61.       58.       56.

                                          STORAGE
   115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
   115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
   115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
   115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
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   115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
   115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
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Sheet 80 of 85

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                                                    GE
       115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
       115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
       115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
       115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
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       115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
       115.      115.      115.      115.      115.      115.      115.      115.      115.      115.
       115.      115.      115.      115.      115.      115.      115.      116.      116.      116.
       116.      116.      116.      116.      116.      116.      116.      116.      117.      117.
       117.      117.      117.      117.      117.      118.      118.      118.      118.      118.
       119.      120.      121.      123.      124.      126.      127.      129.      131.      135.
       139.      143.      146.      148.      151.      153.      155.      155.      155.      154.
       152.      151.      149.      149.      146.      145.      144.      143.      141.      140.
       140.      139.      138.      137.      136.      136.      135.      134.      134.      133.

                                                  STAGE
      470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
      470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
      470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
      470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
      470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
      470.0     470.0     470.0     470.0     470.0     470.0     470.1     470.1     470.1     470.1
      470.1     470.1     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
      470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0     470.0
      470.0     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.1
      470.1     470.1     470.1     470.1     470.1     470.1     470.1     470.2     470.2     470.2
      470.2     470.2     470.2     470.3     470.3     470.3     470.3     470.3     470.3     470.4
      470.5     470.6     470.7     470.9     471.0     471.2     471.4     471.6     471.9     472.2
      472.7     473.0     473.3     473.6     473.9     474.1     474.2     474.3     474.3     474.2
      474.0     473.8     473.7     473.5     473.4     473.3     473.1     473.0     472.9     472.8
      472.7     472.6     472.5     472.5     472.4     472.3     472.2     472.2     472.1     472.1

PEAK OUTFLOW IS       159. AT TIME  42.67 HOURS

                                     PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME
                             CFS     159.      132.       50.       24.          3633.
                             CMS       5.        4.        1.        1.           103.
                          INCHES               2.66      4.05      4.08           4.08
                              MM              67.59    102.84    103.68         103.68
                           AC-FT                 65.       99.      100.           100.
                       THOUS CU M                80.      122.      123.           123.

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Sheet 21 of 25

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO FLOWS RATIO 1 1.00	RATIO 2 .75	RATIO 3 .50	RATIO 4 .25
HYDROGRAPH AT	1	.26	1	922.	692.	461.	231.
	(	.67)	(	26.12)(	19.59)(	13.06)(	6.53)(
ROUTED TO	2	.26	1	923.	690.	456.	143.
	(	.67)	(	26.13)(	19.53)(	12.91)(	4.06)(
ROUTED TO	3	.26	1	921.	691.	450.	144.
	(	.67)	(	26.08)(	19.55)(	12.73)(	4.08)(
HYDROGRAPH AT	2	.09	1	363.	273.	182.	91.
	(	.23)	(	10.29)(	7.72)(	5.15)(	2.57)(
2 COMBINED	2	.35	1	1224.	918.	601.	187.
	(	.91)	(	34.66)(	25.99)(	17.02)(	5.30)(
HYDROGRAPH AT	3	.11	1	433.	324.	216.	108.
	(	.28)	(	12.25)(	9.19)(	6.13)(	3.06)(
2 COMBINED	3	.46	1	1647.	1224.	806.	242.
	(	1.19)	(	46.64)(	34.66)(	22.83)(	6.85)(
ROUTED TO	10	.46	1	1628.	1222.	847.	159.
	(	1.19)	(	46.10)(	34.62)(	23.99)(	4.50)(

North Lake Dam

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	572.00	572.00	573.75
STORAGE	210.	210.	249.
OUTFLOW	0.	0.	70.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	574.37	.62	263.	923.	8.67	40.67	0.00
.75	574.25	.50	260.	690.	6.33	40.67	0.00
.50	574.11	.36	257.	456.	4.67	40.67	0.00
.25	573.86	.11	251.	143.	2.33	41.67	0.00

PLAN 1 STATION 3

RATIO	MAXIMUM FLOW,CFS	MAXIMUM STAGE,FT	TIME HOURS
1.00	921.	478.7	40.67
.75	691.	478.3	40.67
.50	450.	477.8	40.67
.25	144.	477.0	41.67

Long Pond Dam

SUMMARY OF DAM SAFETY ANALYSIS

Long Pond Dam

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	470.00	470.00	476.00
STORAGE	115.	115.	174.
OUTFLOW	0.	0.	891.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	476.22	.22	176.	1628.	2.67	40.67	0.00
.75	476.11	.11	175.	1222.	1.67	40.33	0.00
.50	475.96	0.00	173.	847.	0.00	40.67	0.00
.25	474.30	0.00	155.	159.	0.00	42.67	0.00

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FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION      JULY 1978
  LAST MODIFICATION  01 APR 80
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REFERENCES

APPENDIX E

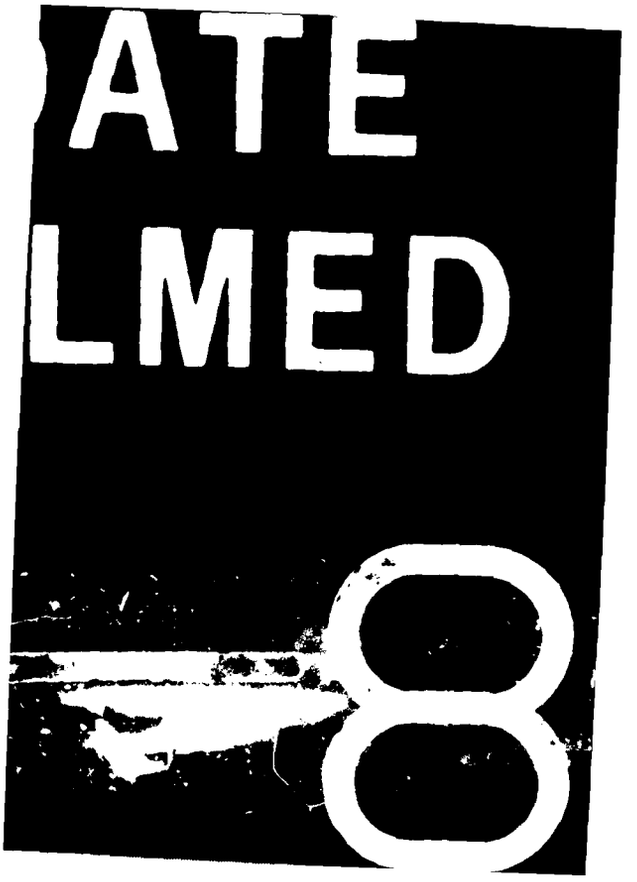
REFERENCES

1. "Flood Hydrograph Package (HEC-1) Users Manual for Dam Safety Investigations", U. S. Army Corps of Engineers, Hydrologic Engineering Center, September 1979.

2. "Seasonal Variation of the Probable Maximum Precipitation, East of the 105th Meridian for Areas from 10 to 1,000 Square Miles, and Durations of 6, 12, 24 and 48 Hours", Hydrometeorological Report No. 33. Weather Bureau, U.S. Department of Commerce, April 1956.

3. "Recommended Guidelines for Safety Inspection of Dams", Department of the Army, Office of the Chief of Engineers, Appendix D.

4. The University of the State of New York, The State Education Department State Museum and Science Service Geological Survey - MAP and Chart Serves No. 5, Geologic MAP of New York 1961, Lower Hudson Sheet.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